

APRIL 1959

IN THIS ISSUE:

Chemical Booby Traps

High Energy Fuels

Oxygen in Resuscitation

The Problem Drinker

National
**SAFETY
NEWS**

A NATIONAL SAFETY COUNCIL PUBLICATION





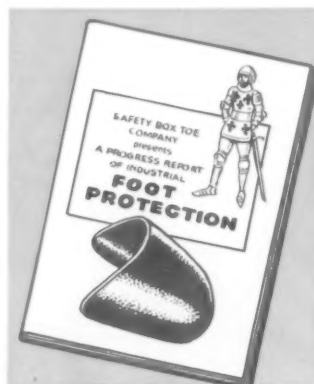
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National SAFETY NEWS

A NATIONAL SAFETY COUNCIL PUBLICATION

Vol. 79, No. 4

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NATIONAL SAFETY COUNCIL

Chartered by the Congress of the
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NATIONAL SAFETY NEWS is published monthly by National Safety Council. Copyright 1959 by National Safety Council. Printed in U. S. A. Entered as second class matter June 21, 1921, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Subscription rate: \$6.50 a year. Single copies \$1.10. All prices subject to 10 per cent discount to National Safety Council members. Quantity prices for yearly subscriptions and single issues on request. Member Audit Bureau of Circulation.

THE COVER

Part of the spring clean-up at Hiram Walker & Sons, Peoria, Ill., is freshening up the pavement markings on plant walkways. Employees are reminded to use these pedestrian walkways by reminders in the company magazine and other media. See page 18.

37,500 copies of this issue were printed.

National Safety News, April, 1959



12 months of the year, more and more companies are finding a ready, steady demand in assembly plants and all warm departments, for the *perforated safety shoe* that keeps feet cool and dry; aids general body comfort. Here is a new and improved Lehigh design that offers a maximum of ventilation without the slightest sacrifice of safety. Order a pair for display **NOW.** They'll go great for Summer street and sportswear.



give 'em air!

Get this merchandising display stand **FREE** with your order.



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LOOK for improvements in industrial handcleaners



A NEW WAY to clean working hands

There has never been such a combination of *plus* features to keep workers' hands healthy—and therefore on the job day after day!

It's a brand new scientific formulation — non-depleting Lan-O-Kleen *PLUS*.

It's WEST'S famous Lan-O-Kleen handcleaner . . . *plus* a softer scrubbing action . . . *plus* a gentler sudsing action . . . *plus* a soothing lanolin action!

All of which combine to combat the depletion of natural skin oils while hands are being washed clean.

Highly important is the exclusive process that keeps the rich lanolin content of Lan-O-Kleen *PLUS* "free" to soothe and soften. Lanolin is impregnated into a corn meal base, instead of being "held" in the soap by conventional methods. In this way, it is instantly released for more positive, beneficial action.

Lan-O-Kleen *PLUS* is dispensed from a patented, precision-action unit. A clog-proof measuring valve with a mechanical agitator delivers a thrifty, yet adequate individual portion. More than 435 pairs of hands can be washed with each dispenser filling.

FREE TRIAL OFFER. We'd be glad to send five pounds of Lan-O-Kleen *PLUS* and loan a dispenser for free trial. Or we'll send a smaller sample for evaluation. Just call your local WEST office. Or mail the coupon to our Long Island City Headquarters, Dept. 3.

- ☐ Supply a dispenser and 5 lbs. of Lan-O-Kleen *PLUS*.
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FOR PROTECTIVE SANITATION
AND PREVENTIVE MAINTENANCE



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EDITORIAL

Roadblocks to Delegation

A FEW MONTHS AGO the fictional hero of Bill Andrew's *Diary of a Safety Engineer* found that his heart couldn't stand the pace of previous years. The doctor gave him some plain talk about the myth of the indispensable man. So, reluctantly, he turned over some of the chores to his two assistants.

The results were rather shattering to the boss's vanity. The juniors—inferior in experience, and perhaps in ability—uncovered some hazards the boss hadn't got around to. He had been spreading himself too thin.

Ability to delegate work and responsibility is one of the characteristics of the real executive. It's also one of the hardest abilities to acquire.

For effective delegation there are two requisites: (1) The boss must be a good teacher; (2) The subordinate must have the capacity to learn and a willingness to accept responsibility.

It isn't easy to stand aside while a subordinate learns by making mistakes—particularly where lack of understanding and judgment may be fatal. And the boss knows he will have to take the rap for his assistant's errors.

Judgment and ability can be developed by starting with minor decisions and working up to the more important ones. That takes time—also patience.

But even where the boss is willing to turn over authority, the subordinate may shrink from accepting it. Lack of ability is not the only reason for this reluctance.

Making decisions is hard mental work. So is thinking a plan through to the finished stage before submitting it. It's much easier to let the boss work out the final details.

Fear of criticism or ridicule has kept many a man from submitting sound ideas and accepting responsibility. A perfectionist boss may unintentionally stifle initiative; so will negative and unreasonable criticism.

The subordinate may feel that he doesn't have the necessary information and resources to do a good job. Too often an employee is assigned to work without adequate instruction or facilities.

And lack of self-confidence has perhaps caused more failures than lack of ability. Ordering a man to have more confidence in himself won't help. Here again, building up experience by assigning increasingly difficult problems will help a man realize his own potentialities.

By delegating work and authority, the safety man can multiply his effectiveness. Even in companies where the safety department is a one-man affair, the safety man can often enlist supervisors and safety committee members on his team and extend his influence through them.

A large, stylized graphic of flames in shades of gray, filling the background of the advertisement. The flames are composed of several pointed, overlapping shapes that create a sense of movement and heat.

**NOW FROM RESEARCH COMES
DU PONT FIRE RETARDANT PAINT**

Proved by Underwriters' Laboratories tests to definitely retard the spread of flame.

Looks, applies, wears like regular flat!



Firemen have pleaded for years to "Find a way to give us a 5-minute jump on most fires and we can control them." Now Du Pont Research has helped supply the answer—*Du Pont Fire Retardant Paint*.

Exhaustive tests conducted by Underwriters' Laboratories have proved conclusively that Du Pont Fire Retardant Paint definitely retards the spread of flame. Yet this durable, washable interior flat finish looks, applies and wears like regular paint.

Du Pont Fire Retardant Paint can be brushed, sprayed or rolled on. And it is available in seven eye-pleasing colors: Pale Blue, Sunlight Yellow, Pale Pink, Daylight Green, Light Green, Guards Gray, Ivory—and White.

Send today for FREE color folder that tells the full story of Du Pont Fire Retardant Paint. It may well be the "ounce of prevention" that can help prevent a disastrous and tragic fire loss. Just clip and mail the coupon below.



Better Things for Better Living . . . through Chemistry

E. I. du Pont de Nemours & Co. (Inc.)

Finishes Division, Dept. NSN-94

Wilmington 98, Delaware

Rush! Please send me a FREE copy of your Fire Retardant Paint folder.

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Circle Item No. 4—Reader Service Card

THE GLOBE M/M MOUTH-TO-MASK RESUSCITATOR ...AN EXTENSION OF THE NEWLY APPROVED MOUTH-TO-MOUTH TECHNIQUE



WITHOUT THE OBJECTION OF INTIMATE CONTACT

Another first from Globe! A new concept for safer and more effective "manual" resuscitation. With the Globe M/M Mouth-to-Mask Resuscitator, you get all the benefits of approved mouth-to-mouth resuscitation plus the important advantage of being separated from the victim. You can monitor his chest movement and lip color without interrupting the rhythm of resuscitation.

In just a few short months—the Globe M/M Mouth-to-Mask Resuscitator has received acceptance by industrial plants, rescue squads, fire and police departments, YMCA's, chemical plants and utility companies.

When you have M/M Mouth-to-Mask Resuscitators strategically located throughout your plant, life saving resuscitation can be started immediately by anyone at the scene of the asphyxial accident.

34⁵⁰ It's low in cost and very practical. Complete kit—including resuscitator, transparent face piece, aspirator, airway and carrying bag weighs only 2 pounds.

Designed and built to the same high standards as:

Globe Dualife
Air/Oxygen
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When the tools of the trade must be perfect, insist on
GLOBE RESUSCITATION AND BREATHING EQUIPMENT

For complete information the Globe M/M Mouth-to-Mask Resuscitator or other Globe resuscitation or breathing protection equipment, write to:
Medical and Hospital Dept., Globe Industries, Inc., 125 Sunrise Place, Dayton 7, Ohio
A few choice territories still available for qualified industrial safety specialists.

Circle Item No. 5—Reader Service Card

National Safety News, April, 1959

AROUND THE COMPASS



ACTIVITIES • PROGRAMS • EVENTS

By Nils Lofgren

Field Service Department, NSC

Dollar Value Of a Good Program

A further reduction in the automobile liability and collision rates for St. Joseph, Mo., has recently been announced. The new rates published by the National Bureau of Casualty Underwriters for Missouri showed an increase for every rating territory in the state except for St. Joseph, which was given a small decrease.

St. Joseph already had the lowest rates in the state, and the new rates widened the gap in this city's favor. Here is a concrete demonstration of the measurable value of a good traffic safety program.

Congratulations to Walter Ladd, manager, St. Joseph Safety Council.

Appraisal Reports Being Prepared

The work of preparing the appraisal reports on the metropolitan safety organizations participating in the Inventory and Appraisal of Safety Organizations is well under way. At the meeting in October 1958 the Appraisal Committee of the Conference of State and Local Safety Organizations granted accreditation to 59 metropolitan safety organizations. This action was approved by the Conference.

Detailed appraisal reports are being prepared on all of these organizations. Interim reports are being prepared on the 12 state organizations still in process of appraisal.

Field Service headquarters staff is preparing the reports on the basis of recommendations made by the Appraisal Committee. As of March 4, reports have been drafted on 49 organizations and 34 appraisal reports have been presented or are scheduled for presentation.

Although some organizations accredited by the Conference were granted provisional accreditation, this status is not reflected in any way by the order of presentation of the appraisal reports.

Aged Drivers Turn in Licenses

"Having reached the age of 81 with a perfect record of safe driving, it occurs to me that it would be a nice gesture to turn in my license and retire from driving a car, voluntarily, before I might become a menace to life on the highway."

So wrote Mrs. Charles F. Lent of Hillsdale, N. Y., to State Motor Vehicle Commissioner Joseph P. Kelly. She enclosed her operator's license which would have been valid for another year.

Similarly, an 81-year-old resident of Alpena, Mich., surrendered his license after 45 years of driving without an accident or ticket. "I can't drive as well as I should anymore, so I'm quitting before I hurt somebody," he said.

Activity Increased At State Level

The past few months have seen increased activity at the state level in the creation and strengthening of citizens safety organizations.

The Margaret Mitchell Safety Council has rented office space in Atlanta, Ga., and has begun to raise funds for its operations. President of this council is J. G. Bradbury, vice-president of the Southern States Telephone and Telegraph Company.

In Florida a new organization has been created: the Citizens Advisory Committee on Highway Safety. Chairman of the committee is J. Edwin Larson, state treasurer and insurance commissioner.

New state organizations are being started in Massachusetts and New Hampshire. The Missouri Safety Council was organized in August 1958, with Joseph R. Hogsett, Kansas City attorney, as president.

In the western states, new citizen organizations were established in Nevada and in New Mexico in recent months. Both of these groups have full-time managers. Organizational efforts are also under way in Arizona.

The secretary of the Nevada Safety Council is William Jorgenson. Jack Gilliam is executive secretary of the New Mexico Citizens' Council for Traffic Safety.

Further Reductions Increasingly Difficult

In commenting that Michigan has reduced its traffic fatalities by a sizable number for the third consecutive year, the Highway Traffic Center of Michigan State University in its Center letter for January makes an observation with applicability to other states and areas.

"These consistent reductions give traffic safety officials considerable cause for rejoicing over the apparent effectiveness to date of the state's diversified program of accident prevention activities.

"With consistently increasing cars, drivers, and mileage predicted, it means that further reductions will become increasingly difficult. Though Michigan has in the past three years exceeded the modest goal it set of a 10 per cent reduction in fatalities from the previous year,

—To page 90

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INSTRUMENTS**

ONLY MSA OFFERS



What does "full line selection" mean to you? In portable instruments at MSA, there's an A to Z selection of on-the-spot sampling units for dusts, mists, fumes and smokes.

These precision instruments have come a long way since the first canary was used underground for detecting carbon monoxide. We remember when miners risked their lives on the tell-tale flutterings of a little yellow bird.

A generation ago, in 1927, we began work on our first colorimetric detection instrument. Hardly a year has

gone by since, that we haven't added at least one new instrument to our extensive line. And we're still adding.

Now, MSA portable instruments keep strict tabs on industrial atmospheres in working areas 'round the world. Factory-trained MSA representatives, well-seasoned in customer-oriented experience, recommend without bias from this complete line. 26 from this line appear here.

Perhaps a talk with the MSA man about dust and gas hazards in your plant would prove helpful.

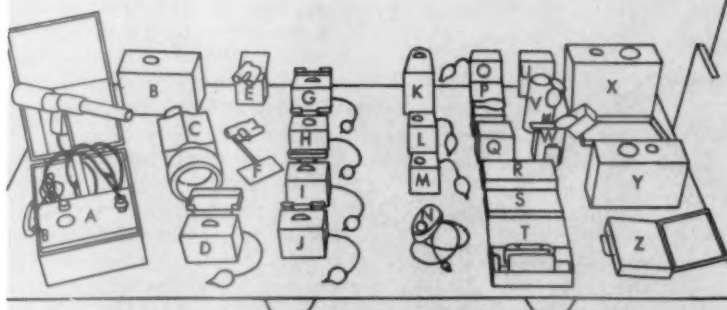
OVER 3600 SAFETY ITEMS: gas and dust instrumentation, head-eye-face protection, dust and fume respirators, oxygen breathing apparatus, gas masks, artificial resuscitation units, first aid supplies and kits, noise detection and ear protection devices, instruments for continuous process stream control, ventilation equipment, and many other items.

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- L. M-S-A Model 5 Explosimeter
- M. M-S-A Model 2 Explosimeter
- N. M-S-A Methane Tester, Type M-6
- O. M-S-A Aromatic Hydrocarbon Detector
- P. M-S-A UDMH Detector
- Q. M-S-A Hydrogen Fluoride-in-Air Detector
- R. M-S-A Arsine Detector Kit
- S. M-S-A Chromic Acid Mist Detector Kit
- T. M-S-A Lead-in-Air Detector Kit
- U. M-S-A Hydrocyanic Gas Detector
- V. M-S-A Hydrogen Sulphide Detector
- W. M-S-A Sulphur Dioxide Gas Detector
- X. M-S-A Carbon Monoxide Indicator
- Y. M-S-A TDI Detector
- Z. M-S-A CO Poisoning Test Kit

CONSULTATION CORNER



Questions on accident prevention, fire protection and occupational hygiene are answered by mail. A few are selected for publication

By L. S. SMITH

Industrial Department, NSC

Handling Pipe

Question: Will you please send us your recommendations for handling and stock-piling steel pipe? Our immediate problem is the larger diameter pipe. We are particularly interested in the different pipe slings recommended.

Answer: Methods of handling and piling pipe vary according to the length and diameter of the pipe. However, large diameter steel pipe of standard length is often handled with a two-legged bridle sling attached to pipe hooks.

Attached to each pipe hook is a $\frac{3}{4}$ -in. rope, used as a control line for keeping the load under control as the pipe is moved. The control line should be at least 10 ft. long and have a knot in the end for easy gripping.

The pipe hook is equipped with a hand hole, so the hook can be inserted in the end of the pipe without injury to the hands. After the pipe has been solidly hooked, workers should stand clear of the pipe's path and use control lines to guide the load. Standard crane signals should be used and the pickup line tightened gradually.

There are several other types of sling hitches possible, but the method described is widely used. With this technique, it is easy and safe to pile pipe.

Pipe should be piled with 1 x 4-in. strips of wood between layers of pipe. Ordinarily, one strip near each end of the pipe will be sufficient. However, longer sections may require more stripping to prevent the pipe from bending by its own weight. The strip should be laid directly over the rack sill.

Chocks should be placed at the end of the strip to keep the pipe from rolling off the strip. Chocks can be made of wood or scrap pipe.

Detailed information on handling pipe may be found in NSC Data Sheet *Handling Large Diameter Oil Field Pipe*.

Static From Steam

Question: Is it unsafe to use a steam hose around a leak in a natural gas line? Can it cause a fire by creating static electricity? I have used steam in this manner for many years, and only recently was told that this was unsafe.

Answer: It is true that steam

passing from an opening in a hose may create static electricity of sufficient voltage to ignite combustible vapors and cause an explosion.

While you did not state how the steam was being used, I assume it is being used as a blanketing agent. Regardless, it could cause an explosion, since you are working around a leak in a natural gas line.

When using steam in such situations, a bonded hose should be used: that is, hose with a metallic covering or built-in ground wire, so it provides a continuous electrical path along the length of the hose. The hose must be grounded at some point.

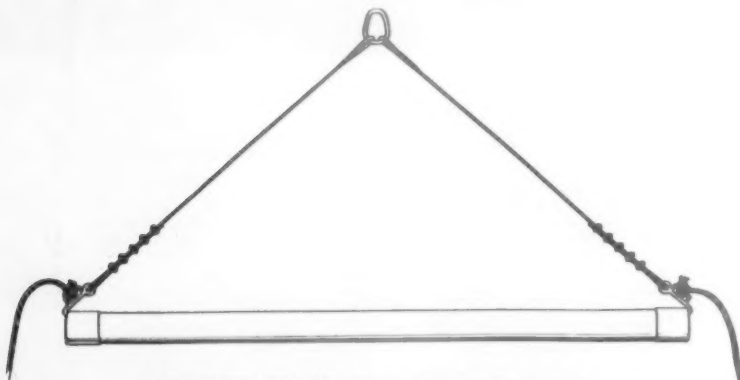
Usually the source supplying the steam is connected to an underground piping system, which would act as a ground. However, if you are not certain whether the steam source is grounded, it would be best to ground the hose. The main object in the prevention of static charges is to provide a short and easy path to drain static charges from all parts of the system.

This can be accomplished by electrically bonding all parts of the system, and grounding the system. Since the gas line is buried in the ground, there would be little chance of building up a charge on the pipe, and the hose could be grounded directly to the pipe. Steam impinging on an insulated surface may build up a static charge, so all insulated sections must be eliminated from the system.

Grounds, to be effective, must be of low resistance. To provide low resistance, the ground should be in contact with moist soil, such as clay, and all connections well made. In many cases, you may think you have a ground, but actually the resistance is too high to provide adequate protection.

If you are not familiar with all requirements of grounding, check the National Fire Codes, Volume 5, *Electrical*, published by the National Fire Protection Association, 60 Batterymarch St., Boston 10.

Protect extension cords on electrical appliances from oil, chemicals and hot or rough surfaces. Keep cord out of aisles and other heavily traveled areas. Do not use electric tools where there are flammable gases and vapors.



TWO-LEGGED bridle sling used to handle large pipe.

Buy The Leader And Save Money

Magic

T.M. REG. U.S. PAT. OFF.



SILICONE
TISSUE

When a product leads the field there are reasons — good reasons.

Both types of MAGIC Cleaning Stations meet the demand for economy-efficiency in your Eye Protection Program. Science's answer to foul sight and each Station gives more safety for less money. They serve every major industry in America — the great post-war success of the safety field.

MAGIC Lens Tissue (Silicone-Treated) sheet is BIG; over 50% larger than usual, and has twice the tearing strength. Loaded with sparkle power. Yet it costs less. It polishes and protects lens as it cleans crystal-clear. The compact dispenser is self-mounting; needs no screws, no drilling. Just stick it to the wall. No maintenance. No wear. No moving parts.

MAGIC Heavy-Duty Cleaning Station is for dirty, oily areas or where Anti-Fog protection is needed — on plastics or any eyewear. MAGIC Lens Cleaning & Anti-Fogging Fluid is pressure-packed. Just touch it and — PRESTO — the can does the rest. 1400 applications per can. One MAGIC can equals 4 old-fashioned bottles. That is the first saving. No pump. No bottles to refill.

Indestructible steel Dispenser locks can in place. No maintenance. No wear. No moving parts. Releases sheets 1-by-1, not in bunches, greatly reducing waste. Or, if you wish to use your home-made fluid, we can supply our Adapter (\$2.70) with a giant 16-oz. bottle and plunger complete. Heavy-Duty Paper, not silicone-treated, is a superb, super-strong, wet strength tissue. No scratching on plastic, and no lint.

BUY THE LEADER. Buy MAGIC. Choose the type that suits your conditions. And EXCHANGE ALL YOUR OTHER STATIONS FOR MAGIC FREE.

HEAVY-DUTY
CLEANING STATION



No wonder MAGIC is the leader. No wonder MAGIC serves every major industry in America. Compare the product, compare these prices and buy.

Magic Silicone Lens Tissue (6 refills (800) sheets ea.)	Ctn. \$ 8.40
Magic Lens Tissue Dispenser FREE WHEN EXCHANGED	ea. 2.50
Magic Heavy Duty Dispenser FREE WHEN EXCHANGED	ea. 5.95
Magic Cleaning & Anti-Fogging Fluid (Twelve 12-oz. cans)	Ctn. 12.50
Magic Heavy Duty Paper (18 giant refills (760) sheets ea.)	Ctn. 11.60
All prices F.O.B. Shipping point	

The Silicone Paper Company of America, Inc., 75 East 45th St., New York 17, N. Y.

Circle Item No. 7—Reader Service Card

THE SAFETY VALVE



Nothing human is alien to me

—TERENCE

TREASURIES OF KNOWLEDGE

NATIONAL BOOK WEEK, April 12-18, reminds us of one of our great institutions—one that we often take for granted and don't use as much as we should.

It's free—or rather the cost is hidden in our tax bills. But I don't know of any municipal service that offers more for the same outlay. I mean the public library.

On its shelves you will find works of ageless wisdom along with the latest whodunits. If you want to bone up on some subject or are just looking for something to relieve insomnia, you'll find it in the library.

The library makes no claim to presenting only enduring gems of literature. It tries to serve people of all tastes and interests—within reasonable limits of good taste and public welfare.

Few of us could find storage space in our homes for all the books that interest us, even if the budget could stand it. And many of these volumes are of the once-through kind.

Supplementing the public libraries are the special libraries maintained by educational institutions, associations and other organizations. These can provide a wealth of information on subjects which are often too specialized for even the metropolitan public libraries.

This gives us an opportunity to express appreciation for the National Safety Council's library which for 45 years has been serving members, the headquarters staff, and all who ask for safety information.

Our library now has on its shelves and in its files more than 350,000 books, pamphlets, manuscripts and photographs. Many of these have been contributed by members, manufacturers and cooperating organizations who have made their knowledge available to others.

Last year our library staff answered 8,500 inquiries, directly and through members of other departments at Council headquarters.

Our library has been following the motto of the Special Libraries Association: *Putting Knowledge to Work.*

SPRING SONG

NOW THAT THE PERILS of slipping on icy pavements have melted away in the temperate zone, insurance companies are finding other things to worry about.

Not the least of these menaces to the human frame is the do-it-yourself movement which moves outdoors with the first mild days of spring.

This do-it-yourself stuff is here to stay. It has opened up a multi-billion dollar market for the hardware stores, lumber yards and paint dealers. They advertise brazenly to the homeowner, without worrying about offending

the contractors and the building craftsmen. These people are as indifferent to amateur competition as barbers have become toward self shavers.

The professionals aren't interested in anything short of building a new house. If you can get one of them to look over the prospective job, his estimate is apt to be discouraging.

So, all over the country men are sallying forth with ladders, tools and paint brushes to improve the buildings and the landscape, or at least to fight off depreciation.

A lot of these home handy men are no longer young. Some of them have bad hearts, high blood pressure and weak backs. Some get dizzy on high ladders. But the urge is often stronger than the doctor's advice or the wife's pleading.

Do-it-yourselfers are an ambitious lot. The work is much too fascinating to be discouraged by the prospect of getting hurt or even spoiling expensive lumber.

The week-end craftsman is up against hazards not found in any well-run shop. Many of the tools would serve as horrible examples for a poster. The ladder (owned or borrowed) is often shaky. And how many home workshops have a pair of goggles?

Speaking personally, I'm sure my ladders would pass inspection. I have a pair of goggles that fit over my bifocals, but I have to admit I don't wear them every time I drive a nail.

There's one menace you won't find around our home. Unlike most of my neighbors I haven't fallen for the lure of a power mower. It isn't the danger; I'm just not gadget minded. A pre-Pearl Harbor hand mower does the job satisfactorily and looks good for years to come.

Another handicap for the home craftsman is getting out of training. He starts the spring chores with more zeal than discretion after a winter of relative inactivity. (Yes, I did my share of snow shoveling last winter).

Both skills and muscles deteriorate with lack of use, and it isn't easy to get back into the stride between Friday night and Sunday night. So go easy about spading too much of the garden at once and lifting those sacks of cement and fertilizer.



Safety comes from man's mastery of his environment and of himself. It is won by individual effort and group cooperation. It can be achieved only by informed, alert, skillful people who respect themselves and have a regard for the welfare of others.

From New York Times, quoted by Safety Standards, U. S. Department of Labor



The language of science and technology, indispensable to the specialized users of these languages, multiply and enrich and complicate the general vocabulary to the point where it can no longer be grasped in its entirety by even the most cultured. *Mario Pei, in Tide.*

Carman Fish

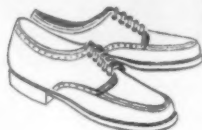
National Safety News, April, 1959

GOODYEAR presents
a great new development in work shoe soles...

CHEMIGUM OIL PROOF SOLES

MODEL SHOWN:

A well-styled,
sturdy shoe
especially designed
for wear by service
station attendants.



CHEMIGUM HEELS
are made of the same
sensational oil proof material
as Chemigum Soles.

Here's a newly invented soling material that adds new meaning to the term "oil proof." Prolonged and carefully controlled tests prove conclusively that Chemigum Oil Proof Soles are *far superior* to average oil proof soles in resistance to oil absorption—a major feature that demonstrates beyond question the remarkably advanced safety qualities of Chemigum.

These amber-colored Chemigum Oil Proof Soles are also superior in every other feature you want in a safety shoe sole. These soles are...

- NON-MARKING
- LONG-WEARING
- NON-SKID
- LIGHT IN WEIGHT

More and more manufacturers of all types of safety shoes are replacing old-style soles with these remarkably safer Chemigum Oil Proof Soles. Look for them!



Mr. **NEOLITE** says:

"We're proud to bring you
another pioneering product
of GOODYEAR research."

CHEMIGUM OIL PROOF SOLES

MADE ONLY BY

GOODYEAR

NEOLITE AND CHEMIGUM OIL PROOF T.M.'S.—THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIOCircle Item No. 8—Reader Service Card



SOFT AS GLOVE LEATHER

(because it's made of glove leather)

Who said safety boots couldn't be soft? This boot is. Outside it's fine full grain glove leather. Inside it's fully lined with soft cream glove leather—with a cushiony inner sole for added walking comfort.

What about safety? This boot's got the safety features men want most. The grip and chemical resistant qualities of our Neoprene cushion

crepe wedge sole and heel. Leather-lined steel toe. Our new Overlap Flaps completely cover the instep for maximum acid and chemical protection. Rugged rawhide hook-on laces. In sizes D, EE, 6-12. Style—S-4187.

Send us this coupon for more information about Thom McAn Safety Shoes. You'll get all the facts plus a free set of safety posters.

Thom McAn
SAFETY SHOES A Division of Melville Shoe Corporation

Circle Item No. 9—Reader Service Card

Thom McAn Safety Shoe Division, 25 W. 43 St., N.Y. 36

Gentlemen: Please send me the following at once:
(Check service required)

- ☐ Details of Thom McAn's Special In-Plant Fitting Plan
- ☐ Fully illustrated list of Thom McAn Safety Shoes
- ☐ Set of safety posters
- ☐ Address of nearest Thom McAn Safety Shoe Store

Name _____

Position _____

Firm _____

Address _____

City _____ Zone _____ State _____

N



(Fiction)

THE DIARY OF A SAFETY ENGINEER

It took an accident in the family
—just a hair's breadth from
tragedy—to prod our safety engineer
into action on off-the-job safety

TOO BUSY

By BILL ANDREWS

April 3, 1959

THE HIGHWAY PATROL captain called me two weeks ago to say he had reports of a considerable increase in traffic violations on the highway west of the main gates of our project.

I made some inquiries and learned there had been no recent injury accidents among our personnel, while driving to and from work.

Last week, a sergeant from the patrol came to see me, and we had quite a talk about the situation. He had statistics showing that violations were especially heavy in the evening rush hour, when our men were going home. The main serious violation increase seemed to be in passing on hills and turns, disregarding the no-passing markers.

This concerned me, and I made a note to have my assistants bring the matter up with foremen in their routine contacts.

The day before yesterday it was the local trooper who came to my office. He's young, earnest, and new on the job.

"I wish you would come on patrol with me," he said. "There is going to be trouble soon, unless something is done to convince your employees that no-passing marks are meant to be observed. We're going to have a high-speed, head-on collision on that road some evening, and people are going to get killed."

I told him I was concerned about off-the-job accidents, but the record didn't seem to bear out his anxiety.

"You come patrolling with me tonight," he repeated.

I told him I was busy that night, but I would make it soon. He thanked me and started to leave. Then he stopped, standing in the open door of my office, to say, "Everybody's too busy. I'm not trying to hound you, and I'm not trying to make a record by producing a lot of arrests. But I tell you, I'm scared."

I am genuinely busy. We have a big clean-up campaign going on throughout the project. There are some eye surveys being made in project plants. I'm developing a whole new course of instruction for foremen's meetings.

In fact, I didn't leave the plant till 7 p.m. the day the trooper called, and by that time the traffic was light and I saw no violations in my drive home.

CONGRESS BANQUET MOVED TO TUESDAY

The banquet at the annual National Safety Congress and Exposition, traditionally held on Wednesday evening, will be held this year on Tuesday, October 20.

Yesterday, again, I worked at a steady clip all day, giving the trooper and traffic problems no thought at all. Sue had taken the car to go shopping in Westburg, so I called her when I was ready to come home, asking her to drive to the project and pick me up.

About the time she was due to arrive, I closed up shop, got my hat and coat, and strolled the quarter-mile from my office to the main gate of the project. Cars were streaming out of the gate in an endless line, for it was right at the peak of the evening rush.

It was a lovely, warm spring evening, the late sun bright against the walls of the buildings. While I waited, I saw my trooper friend drive east past the gate, swing into a farm lane, back up and start west. He pulled off the road by the gate house and called to me, "Want to take a ride?" I explained I was waiting for my wife.

The traffic kept streaming out the gate, 90 per cent of it turning west, filling the lane with an almost solid line of slow-moving cars. The other lane of the two-lane highway was practically deserted.

"Come on with me," the trooper insisted. "If we meet her, I'll flag her down, and you can tell her you're with me. I'll get you home in time for dinner. Two more round trips, and we'll have passed the peak of evening traffic."

So, leaving a message for her at the gate in case we missed her, I got in the car and we slid into the west-bound traffic stream.

Nothing particular happened in the seven-mile trip west, but just as we swung into the filling station

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ON GUARD

at Hiram Walker's

Persons, practices, equipment—all are included in the "Sentinels of Safety" which guard employees at work. These have been personalized in a series of feature stories in the company magazine

HOW TO TELL the safety story to employees is an old and continuing problem—one that taxes the ingenuity of the safety director and his ally, the employee publication editor. This kind of teamwork is producing many excellent safety features for employee readers.

Back in March 1957, *The Spirit*, employee magazine of Hiram Walker & Sons at Peoria, Ill., started a two-third page feature called "Sentinel of Safety." Each contained about 100 words of copy and one or more pictures presenting some phase of the program which

Two of the many "Sentinels of Safety"—the emergency fountain ready to prevent a serious eye burn, and the nurse ready to treat injury or sudden illness.



Sentinel of Safety



Plant Walkways

For the safety of pedestrians and to guide automobile drivers, yellow lined walk-ways are painted on the Edmund Street plant roadways.

As a part of our spring clean up, George Munstedt and Warren Driver are freshening up pedestrian walk-ways just south of the Edmund Street gate.

Employees are expected to walk in these lanes for their own safety and to facilitate the movement of trucks and automobiles in the plant.

How the "Sentinels of Safety" series was presented in each issue. The symbolic figure of the guardsman gives continuity to the series.

Plant guard patrols premises with combustible gas indicator to detect accumulations of flammable vapor.

is protecting employees against job hazards.

To emphasize the continuity of the series, each also carries an illustration of a symbolic sentinel.

Like other industrial plants, Hiram Walker has no-smoking signs, safety shoes and goggles, machine guards, sprinkler systems, emergency rescue procedures, protective clothing and safety inspections. And there always are many more safety and fire protection features which may be unseen and not generally known. One purpose of the Sentinel of Safety series is to keep employees informed and reminded of these inconspicu-

ous safeguards and, thereby, show the extent of management's interest in the employees' safety and well-being. Reporting to readers about the *why* of each safeguard helps to reassure employees and their families of the safety of their jobs.

Here are a few of the special considerations which Editor Bob Gerstecker follows in arranging each installment of the series:

1. Let the picture tell as much of the story as possible. Each Sentinel story is written around an important practice in the prevention of fires and accidents. Photographs always show plant people at work in the actual settings. None is a canned or set-up story.

2. Text is kept short, personal, non-technical and easy to understand.

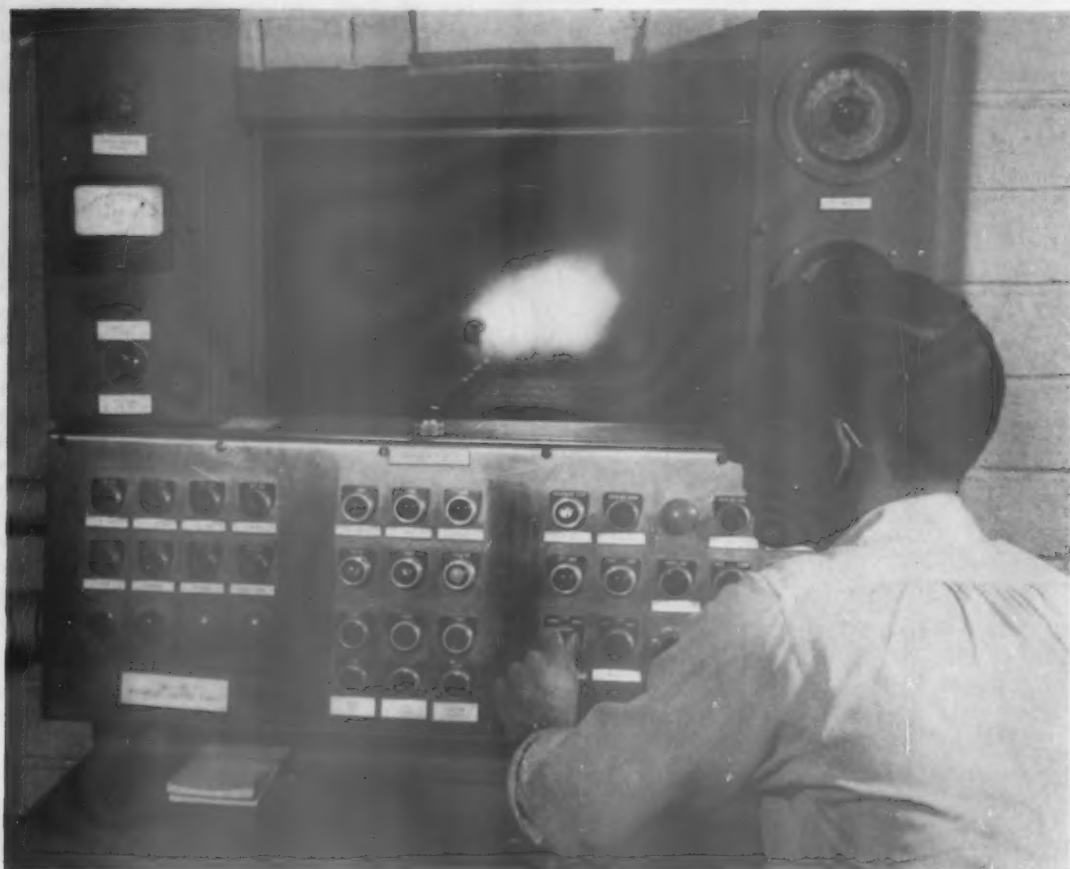
3. A brief once-a-month story can do more and is better received than an all-out, once-a-year bonanza. After all, every day is a day for safety—not just a special week or month, or whenever it's convenient.

4. Work closely with the people of the Plant Protection Department in planning and preparation of all articles. It's a fine opportunity to practice what all editors preach: "Teamwork pays."

5. Plan the series well in advance. Such planning provides an opportunity to evaluate the program in advance and also provides the flexibility, when needed, to substitute timely topics in the series.

Safety Manager James Snyder and Editor Bob Gerstecker have been more than pleased with the results.





CONTROL PANEL below observation window allows operator to aim and fire flame-plater and move and position parts being flame-plated.

Faster than Sound Hotter than . . .

**Keeping powerful forces under control
permits many applications of flame-plating**

COMPARISONS are usually relative, and frequently they are a form of boasting. Yet, it is probably safe to say that the Flame-Plating process has more built-in safe design and requires more safety precautions than most other commercial production methods. For in the Linde Flame-Plating process we are not only dealing with acetylene gas, but

we produce controlled detonations of a mixture of acetylene and oxygen.

These detonations produce flame temperatures of 6000 F and velocities of 9660 fps—nine times the speed of sound.

In addition, the process operates at an ear-shattering sound level of 150 to 155 decibels inside the cubi-

cles. This is said to be a higher noise level than that produced by a 90 mm cannon.

Although the extremes of temperature and velocity are of great potential danger to equipment and personnel, and the sound level could be hazardous to personnel, no disability injury has occurred since production started six years ago.

Flame-plating is a process in which the detonation of a mixture of acetylene and oxygen in a gun-like device raises a stream of tungsten carbide or aluminum oxide particles to a high temperature and propels these particles at extreme velocity to the work piece being

By W. L. DONNELLY

Production Manager, Flame-Plating,
Linde Company, Division of Union
Carbide Corporation

plated or coated. The particles of tungsten carbide or aluminum oxide are ejected from the barrel of the gun at supersonic speed. They embed themselves in the surface of the work piece, where a microscopic welding action takes place, producing a tenacious bond at the interface.

Although the temperature in the gun barrel reaches 6000 F, slightly plasticizing the particles, the part being plated seldom exceeds 400 F. The flame-plating process does not warp or change the metallurgical properties of the parts being flame-plated. Successive detonations, at the rate of 4.3 shots per second, build up the coating to the desired .002 to .010-in. thickness.

Flame-plating has found its prime use in the areas where resistance to wear is critical. For example, one would not think of flame-plating caterpillar treads or power shovel teeth. Its primary use has been in the aircraft and missile industries in such components as turbine blades, seals, and rotating members on engines and rocket systems. Flame-plating has also found widespread use in critical tooling types of applications such as gages and knives

for cutting nonmetallics (rubber, plastics, and paper).

Flame-plating has been successful in unusual areas: making fishing reels more resistant to wear caused by nylon fishing line, increasing the life of critical parts in movie projectors abraded by film which passes over them, and giving better cutting edges to the family cutlery.

It is extremely important from a safety standpoint to understand the differences between the flame-plating detonation and the more common explosion, technically called a *deflagration*. In a deflagration, the flame travels into the unburned gas at a velocity of about 35 fps. In a

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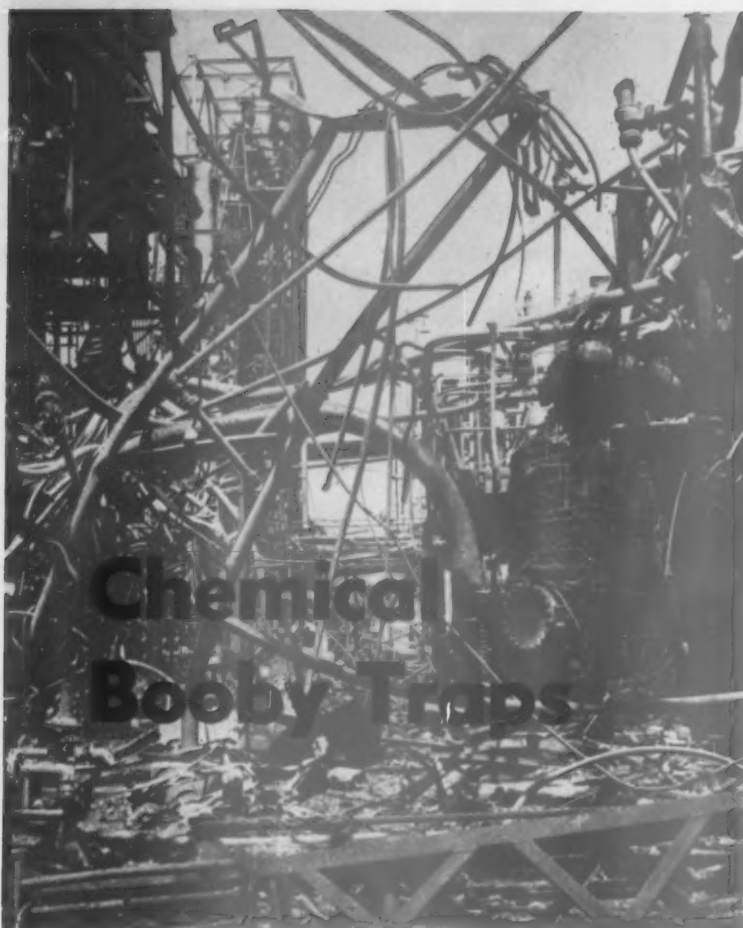
DIAGRAM of detonation of flame-plating gun, showing how particles are heated and ejected at extreme speed.



POWDER DISPENSER must be of extremely heavy construction to be explosion-proof.



IN AN EMERGENCY operators can pull any of four overhead chains to unarm the gun. Electric door switch stops operation if inner door is opened.



Chemical processes involve the use of many substances, some of them temperamental and violent in their behavior

CHEMICAL REACTIONS and military booby traps have one characteristic in common—ability to convert without warning an apparently harmless environment into an unpleasant situation. For this reason, attention should be given to that delicate balance which may tip the scale either way toward a safe, controlled reaction or toward a runaway reaction.

An example of this balance in action is the oxidizing power of chromic oxide on flammable solvents.

By **HOWARD H. FAWCETT**

Safety Director, Research Laboratory, General Electric Company, Schenectady, N. Y., before the Chemical Section, 46th National Safety Congress.

Chromic oxide, when heated to 330 C, decomposes suddenly, giving off oxygen and evolving heat. With further heating, chromic sesquioxide is formed.

If a few drops of a flammable volatile solvent, such as acetone, methyl ketone, or ethanol, contacts solid dry chromic oxide, a few seconds may elapse while some of the oxidant reaches the critical 330 C temperature. At that point, combustion occurs with enough vigor to raise a fireball several feet in the air. Chromic oxides spatter over a wide area.

Acetone is an especially interesting liquid, since it decomposes with such vigor. Acetone vapors at 700 C yield ketene and methane.

AN EXPLOSION of the extent of the Texas City disaster is an extreme example of uncontrolled reaction.

Ketene is autoxidizable, and forms unstable explosive peroxides with oxygen. Mixed sulfuric-nitric acids (such as used in nitrations) will decompose acetone with violence enough to break bottles and windows, especially if the reaction is partially confined by dropping the acetone into a narrow-mouth bottle containing the mixed acids.

Another fact about acetone ignition which is not widely appreciated is that water solutions of acetone are flammable over a very wide range. As little as 5 per cent solution of acetone in water will flash at 140 F if an ignition source is present (as in the Cleveland open cup tester). The higher the acetone percentage in the acetone-water mixture, the lower becomes the flash point, until the pure acetone is reached with its 0 F flashpoint.

Acetone is one of hundreds of flammable substances used in large quantities, but gasoline is the flammable liquid with which we are all most familiar. It can become a booby trap, but with knowledge we can use it properly. First, we know the flammable limits (the range over which gasoline-air mixtures are burnable or explosive) are about 1.4 to 7.6 per cent by volume in air—a range which is narrow compared to the range of many other commonly used liquids.

Gasoline. Mixtures of gasoline vapors in air are usually too lean or too rich. Probably this narrow range is one reason we only occasionally hear of fires in filling-stations where gasoline is frequently handled without special precautions by personnel, or in automobile accidents. It may explain why someone sprayed with gasoline (such as when a tank is overfilled or a hose breaks during delivery), escapes incineration.

Second, we know that gasoline (and all other flammable liquids) should be handled in properly constructed metal cans, not glass. In some states it is illegal to sell gasoline in glass containers, but we have all observed a man walking away

from a filling station with a glass jug of gasoline in one hand and a cigaret in the other. Home use of gasoline has increased greatly with power lawn mowers, outboard motorboats, gasoline-fueled stoves, motor scooters, motor skates, gasoline lamps, and numerous other applications.

Gasoline is still used for cleaning on a wider basis than often realized. In a small community with which we are acquainted, one filling station sells 50 gallons of white (non-leaded) gasoline per month, and most of this is used for cleaning or as a solvent. Gasoline, whether white or dyed, is made to burn, and should never be used except as a fuel in a properly designed and maintained motor or similar "safe" equipment.

Third, we know that static electricity can be generated and discharged simply by pouring or pumping gasoline, and may serve to ignite the vapors. If a glass jug containing a gallon of gasoline drops from a few feet to the ground, occasionally it will not break, but more often it will. Great differences exist in the strength of identical-looking glass jugs.

Various surfaces, such as dirt, grass, stones, blacktop, and concrete differ in their ability to "bounce" or "rupture" the jug. Likewise, if

rupture does occur, the area which the gasoline will cover depends on surface, slope, wind, and other variables. When dropped 30 in. on to a small sharp stone sitting on a smooth level blacktop area, with a wind of 9 mph blowing, we observed fires averaging 60 sq. ft. with flames 8 ft. high.

Safety containers. To receive, handle, and dispense flammable liquids, such as gasoline, safely, they should be dispensed, handled, stored, and used in metal containers possessing the following features:

1. Heavy-gauge metal construction.
2. Rolled or welded seams and joints (not soldered or riveted).
3. Flash arrester screens at filling and pouring openings to prevent flashback.
4. Spring-tension closers with tightly-fitting gaskets to keep openings normally closed, but regulated so pressure inside the container (as built up if the container is near an external heat source) may vent itself to a safe pressure. Such containers are commercially available in a wide range of shapes and sizes.

We filled a gallon "safety can" answering these specifications with one gallon of gasoline, and placed it over an external fire. The gasoline boiled inside the can, the vent

opened, and the vapors escaped under controlled pressure. These vapors then ignited from the external fire, and the vapors burned for several minutes in a spectacular but, *controlled* fire. No explosion or widespread spill could occur due to the construction of the container.

Refrigerators. Domestic refrigerators and freezers are designed and built for the storage of goods and other normal home items. Included in most refrigerators as produced are open-type spark-producing sources of ignition:

1. The compressor motor, which is not of a type approved for hazardous locations under Article 500 of the National Electrical code.
2. The two-wire system terminating in a service plug which may arc when plugged in or unplugged under load.
3. The thermostat relay for the cold control, which switches the motor on and off as required to maintain a desired temperature.
4. The interior lamp, with its door-operated switch.
5. The butter cooler and related circuits.
6. The door latch or magnetic door closure, which may spark in opening or closing.

Since some refrigerators are used in laboratories, hospitals, and schools for storage of volatile solvents (such as ether, benzene, pentane), unstable compounds (such as monomers and organic peroxides), and compressed and liquefied gases, all of which may produce an explosive mixture inside the box, it is extremely important that all spark-producing elements be removed before refrigerators are placed in this service.

In spite of the warnings on this subject, explosions continue to be reported due to improper use of the domestic refrigerator. Unless the refrigerator is properly modified, or has been designed and built especially for chemical storage, it may be a chemical booby trap.

Even if "safe" refrigerators are used, a regular program of inspection, defrosting, and discarding of substances which have lost their utility or their identity should be strictly observed. The total quantity of materials which will decompose

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EVEN SIMPLE laboratory experiments involve reactions that can cause personal injury and property damage if they get out of control.



TOW-TYPE SWEEPER used at Newark Airport.
(Photos by the Port of New York Authority)

Power Behind the Broom

Got vast areas of floor, grounds and roadway to keep clean?
Mechanical sweepers of many types do a fast, thorough job

IN THE PAST we have been quick to accept any mechanical gimmick that promised to do a better job, save manpower and save dollars. So, in discussing power sweepers, let us consider the areas to be cleaned, the problems involved, and the equipment to be used in each operation.

Areas with sweeping problems include:

1. Public lobby and sidewalk entrances.
2. Sidewalk and curb areas.
3. Manufacturing and processing work and aisle areas.
4. Warehouse floors.
5. Street and roadway surfaces.
6. Parking lots and garage floors.
7. Confined and obstructed outside areas, such as airport ramps and pier or terminal areas.

By **RICHARD F. EHMANN**

Assistant Supervisor of Cleaning Standards, Operation Services Department, The Port of New York Authority. Presented before The Institute of Sanitation Management, November 5, 1958.

Starting with public lobby surfaces, two operations are involved—policing and sweeping. Policing requires the picking up of cigaret butts, candy wrappers and miscellaneous trash with a pickup pan and a toy corn broom. These surfaces, when foot traffic permits, can be swept with a 24 or 36-in. floor brush.

Sidewalk areas adjacent to building lobbies can be cleaned (again depending on foot traffic) with the pickup pan and a toy corn broom or a Grade C street broom. In either operation there is minimum effort with little expenditure for equipment. Manpowerwise, we are talking about 50-60,000 sq. ft. per hour for policing and 10 minutes per 1,000 sq. ft. for sweeping.

For such areas as sidewalks and curb areas adjacent to sidewalks, there are a number of possibilities depending on size of areas, traffic conditions, and soil conditions. Relatively small areas can be swept with a Grade C street broom.

Pusher-type sweepers. If the area is sizable, use of a mechanical

pusher-type sweeper of 20-26-in. brush size is justified. This type is not expensive and will do the job required in these areas. It is not a motorized unit and is not subject to constant repair and "cannibalization" (stealing parts from another unit to keep it operating), nor is it required that the operator make what he thinks are expert adjustments to the sweeper.

Many power sweepers of similar brush size are too small for the job and too easy for the operator to experiment with. The pusher type has only a few moving parts—wheels, brushes, drive belt working off the wheels, and, of course, the operator. One simple operation is required with this unit—you push it. A machine of this type will sweep about 20,000 sq. ft. per hour.

For street and roadway sweeping, or for curb areas where there are many obstructions, such as parked cars, the operation can be handled adequately with a Grade C street broom, a scoop shovel, and a two-wheeled trash cart. The operation is slow, with coverage of about 700 linear ft. per hour.

Power sweepers. Locations such as warehouses, work and aisle areas in manufacturing and processing departments, extensive sidewalk areas, confined areas such as airport aprons, or freight and pier terminal areas can be swept economically and efficiently with small power units.

However, there may be conditions in these areas where power sweepers are not practicable, such as beams, columns, and machines; the nature of operations, such as food preparation; or perhaps the soil type or soil accumulation, such as excessive oil or liquid spillage, long strands of wire or metal strapping, and large pieces of bulky trash.

For these areas the most satisfactory type of power sweeper has a revolving brush 36-48 in. long, at times supplemented with a side or curb brush. A vacuum system collects fine dust, eliminating use of water for keeping down dust. Debris is picked up and swept into a hopper with a capacity of about 10 cu. ft.

Operation of this type is relatively simple, but the operator should be trained to insure efficient performance and proper care of equipment.

A time standard for these operations is difficult to set up, due to such problems as obstructions and varying soil types. On extensive open concrete surfaces in a terminal



SIDEWALKS and gutter areas can be swept quickly with a mechanical sweeper. (From "Building and Equipment Sanitation Maintenance—Principles and Practices.")

area we have found that a unit of this size can sweep 35,000 sq. ft. per hour.

Incidentally, we have heard rumors that these machines can be used for sweeping lawn areas. If so, we can visualize great need for these sweepers in industries and institutions located in suburban areas where there are many trees. Manufacturers of these units might go one step further and provide a mulching attachment which would allow the

picked-up leaves to be redeposited on the lawn as fertilizer.

Extensive street or roadway areas, parking lots, or other similar large open areas, are efficiently swept with large power-sweeping equipment. Sweepers of this size are equipped with a rotating cylindrical center brush 72 in. long, and a side or curb brush approximately 24 in. in diameter. A water tank and spray system is built in for dust control. The hopper will hold about 36 cu. ft. of debris.

Again it is difficult to set a time standard, but results of a study we recently conducted showed a man could sweep 15.7 total miles of roadway in an eight-hour day. This time included get-ready time, refilling the water tank when necessary, normal breaks, lunch period, emptying the hopper, and one-half hour for cleaning the machine and for lubricating vital parts of the machine at the end of the work day.

Specialty sweepers. At least three types are available for problem areas.

For instance, in the sweeping of airport runway areas or roadways, there is available a tow-type powered brush sweeper. This machine sweeps by an angle-pitched, power-driven, revolving brush towed behind a truck. This type of sweeping operation is not designed to pick up soil, but to sweep it off the runway

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72-INCH SWEEPER used at Newark Airport.



36-INCH SWEEPER used at Teterboro Airport.



MASS RESUSCITATION. Mechanical apparatus for artificial respiration and administration of oxygen manned by police and firemen arrive on the scene as eight men are rescued from a 15-ft. manhole after a break in a gas main. (Mine Safety Appliances Company.)

Oxygen in Resuscitation

When artificial respiration alone will not supply enough oxygen, a device for administering it will often save a life

ANY PERSON capable of normal breathing can obtain the necessary oxygen to meet body needs simply by increasing the rate and depth of respiration. The respiratory mechanism is capable of a wide range of accommodation.

For instance, a person walking at four miles per hour will breathe 26,000 cc of air per minute and will extract from it 1,200 cc of oxygen.

By **RALPH E. DeFOREST, M.D.**
Secretary, Council on Medical Physics, American Medical Association, Chicago. This article has been condensed from a paper delivered at the Forty-sixth National Safety Congress, October 23, 1958.

This represents a 400 per cent increase in oxygen consumption when compared to an adult at rest.

Obviously, if the victim of an emergency situation can be induced to breathe deeply and rapidly, an abundant supply of oxygen is provided.

The various manual as well as mouth-to-mouth methods of artificial respiration provide pulmonary ventilation with ordinary air, and they can be most effective in sustaining life and providing an adequate blood-oxygen saturation without additional oxygen in the inhaled air.

However, when it is difficult to maintain adequate blood-oxygen sat-

uration for some other reason, the addition of oxygen to the air inhaled has a real and significant therapeutic value.

Although not essential in an emergency situation, it is highly desirable that oxygen administered over long periods of time be humidified before being administered.

Failure of a person to receive an adequate supply of oxygen is called hypoxia. As a rule, emergency situations result from conditions discussed in the sections immediately following. These conditions are:²

1. Inadequate oxygenation of blood in the lungs.
2. Inadequate transport of oxygen by the blood.
3. Inadequate tissue oxygenation.

Inadequate oxygenation of blood in the lungs can be caused by a number of conditions.

1. Deficiency of oxygen in the atmosphere. This condition most often results in a confined atmosphere when any gas displaces the oxygen of ordinary air. For instance, in mines certain gases—such as methane (fire damp) or nitrogen and carbon dioxide (black damp)—can displace the oxygen and thereby lower the oxygen concentration.

In such situations, the gases which have displaced the oxygen do not necessarily by their presence produce direct harmful effects upon the human body. They simply act by reducing the oxygen tension (concentration) in the confined atmosphere of a particular location.⁴ Readjusting the oxygen concentration of the air which the victim breathes is consequently most urgent. This can be accomplished by moving the victim into a less contaminated environment, or by administration of oxygen by nasal catheter or oro-nasal mask.

A deficiency of oxygen in the atmosphere is also a characteristic of high altitudes. Although the percentage of oxygen in the air remains constant as one ascends, the absolute amount of component gases which comprise a unit volume of air is decreased because the air pressure at such heights is less, and all gases have expanded. Thus, there are fewer molecules of oxygen available in each breath.

2. Inefficiency of respiratory activity. Shallow breathing, as can be caused by a painful chest injury, may result in a marked lowering of both tissue and blood-oxygen levels and in dyspnea (belabored breathing). In such cases, the administration of oxygen by nasal catheter or oro-nasal mask is indeed helpful.

Adding carbon dioxide to the oxygen also has been advocated; this may be especially helpful if the victim's rapid, shallow breathing has caused him to exhale excessively large amounts of carbon dioxide.

However, a word of caution is in order! One cannot be sure that this situation has indeed occurred. Therefore, it seems far wiser to relieve the victim's pain with the administration of suitable drugs and splinting, and to encourage the vic-

tim to breathe more slowly and deeply.

Complete and partial apnea can also be listed under this heading. Either complete or partial apnea is most often encountered in drowning, electrocution, stroke, or poisoning by drugs or certain chemicals (methyl chloride, benzol, etc.). Obviously, administration of artificial respiration by either the mouth-to-mouth or back-pressure arm-lift method should be begun immediately.

When available, apparatus which provides pulmonary ventilation (i.e., breathes for the patient) can be used. Most of these devices, known as resuscitators, employ a face mask through which is provided air consisting of nearly pure oxygen. In addition, they facilitate removing carbon dioxide from the victim.

An abundance of carbon dioxide develops in the tissues of any individual who is not breathing because no carbon dioxide is expelled through the lungs. Thus, it is readily apparent that in case of asphyxia (i.e., an inadequate supply of tissue oxygen and overabundance of carbon dioxide) no additional carbon dioxide is needed to stimulate respiration.

A victim of asphyxiation who has recovered sufficiently to maintain some degree of unaided respiration should be encouraged to greater breathing efforts. If the victim is comatose (unconscious) or nearly so, artificial respiration can be used if no resuscitator is available. Administration of oxygen by nasal catheter can also be of great help.

Victims of a stroke or an acute respiratory paralysis may also suffer from severely depressed respiration. Once again, oxygen administration by nasal catheter is desirable if the victim is breathing. If breathing is extremely shallow or nonexistent, artificial respiration should be applied.

3. Obstruction of airways. Obstruction of the airways can be caused by foreign bodies which become lodged or by such conditions as laryngeal spasm, displacement of the tongue, or acute bronchiole spasm.

Displacement of the tongue is as a rule found in victims who are unconscious, semiconscious, or para-

lyzed; acute bronchiole spasm is usually found in asthma subjects. These situations call for speedy relief of the condition causing the obstruction. Oxygen by nasal catheter is usually indicated.

Another condition which can block free passage of air to alveolar respiratory epithelium is pulmonary edema (fluid in alveoli). The edema may be secondary to acute, severe coronary occlusion, congestive heart failure, traumatic shock, or may be due to chemical poisoning such as occurs following inhalation of sulfides. In an emergency situation with no professional medical help immediately available, it is usually difficult to determine if pulmonary edema or coronary occlusion is actually present.

However, the presence of severe shock can more readily be determined. At any rate, administration of oxygen in these instances is indicated and desirable. The resultant increase in oxygen concentration in the lungs enhances the diffusion of oxygen through edema fluid and on into the arterial blood.

Inadequate transport of oxygen by the blood exists in subjects with coronary occlusion, congestive heart failure, traumatic shock (so-called peripheral circulatory collapse), hemorrhage, or carbon monoxide poisoning.

A study of two groups of patients² revealed a number of pertinent facts. The authors concluded that administration of oxygen in patients with coronary occlusion not accompanied by pulmonary edema and shock is probably not needed, but that it helps to relieve dyspnea and adds to the oxygen dissolved in tissue fluids. They further concluded that administration of nearly pure oxygen is desirable in all cases of coronary occlusion accompanied by shock and pulmonary edema.

Some authors³ feel more strongly about relieving such deleterious effects as tissue anoxia (lack of oxygen). They feel that high oxygen concentrations are especially useful in such conditions as surgical shock, severe myocardial infarction, or cerebral infarction—all of which are characterized by severe localized tissue anoxia. Here, such high oxygen concentrations are applied for the primary purpose of increasing

—To page 46

Harnessing High-Energy Fuels

Boron hydrides are highly reactive and quite toxic but the problems of production, handling and use can be controlled

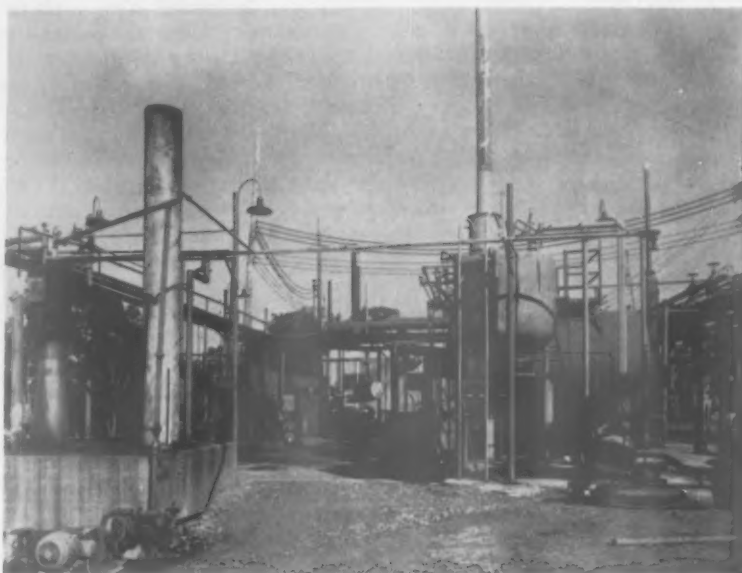
ALTHOUGH BORON hydrides cannot be considered a basic source of energy, they appear to be superior to most other energy sources for missiles and aircraft, according to Lewis A. Barry, operations manager of Callery Chemical Company's Research and Development Laboratories at Pittsburgh.

Other uses of boron hydrides are also expected to expand, said Mr. Barry, speaking before the recent annual meeting of the American Institute of Chemical Engineers. These uses include wider application as fuel additives, industrial reducing agents, and antioxidants.

Production problems involve two general characteristics of boron hydrides. They are extremely reactive chemically and are sensitive to air and moisture. In general, they are quite toxic.

Callery's experience indicates that handling hazards can be controlled. During the past five years, accident frequency and severity rates have been much lower than the average for comparable chemical plants.

Fire protection, health protection, and waste disposal are the three main problems in development of a large-scale production process. Because some of the intermediates of boron-based fuel are greatly reactive to air, when these materials leak from a processing system they usual-



WASTE DISPOSAL in making boron hydrides needs elaborate equipment. Waste system (right) has submerged combustion burner to concentrate aqueous wastes from scrubber sump. At left, venturi scrubber mounted on a collection sump takes flue gases from a waste disposal burner.

ly burn and sometimes explode. Pilot operating units, therefore, are usually isolated and operated remotely or behind barricades. Explosion protection is provided also by soft-wall or blow-out panel construction.

Fire protection. Most common fire extinguishants are not effective on boron hydride fires, and some are violently reactive with boron hydrides. Water fog or spray systems and some new foams have been found to be moderately effective. The best procedure is to cut off the supply of the hydride and try to confine the fire with extinguishers.

Some boron hydrides and derivatives are readily decomposed by air and moisture, and it is necessary to seal all parts of a process unit to exclude atmosphere. Nitrogen is used as an inert blanketing gas. A

nitrogen generating unit is a necessary auxiliary to a boron hydride plant. Decomposition reactions may be vigorous and sometimes violent. Decomposition products may be solids which clog operating systems. Others may cause corrosion.

Before a system that has been opened for maintenance can be returned to service, it must be thoroughly dried and the air removed. The system may be flushed with volatile cleaning and drying solvents, then purged with hot, dry nitrogen. Vacuum pumps may be used on small units but should not be used in larger plant equipment.

Health problems. Because of the toxicity of boron hydrides, methods have been developed to detect traces in the atmosphere. Continuous, automatic monitoring instruments and colorimetric manual sampling test kits are now in use and have

Comparative Energy Sources

Source	Heat of Combustion Btu/lb.
1. Hydrogen	51,600
2. Lithium	36,900
3. Beryllium	29,200
4. Boron	25,100
5. Carbon	14,140
6. Diborane	31,370
7. Pentaborane (9)	29,100
8. Decaborane	28,100
9. Gasoline	20,700
10. Fuel Oil	17-18,000
11. Coal	13-14,000

been made available commercially by Mine Safety Appliances Company. These instruments can detect a few parts of boron hydrides per billion in the air.

To minimize the effect of atmospheric contamination on operating personnel, process enclosures are maintained under reduced pressure, and the operating area outside the cells is under pressure greater than atmospheric pressure. Air inside process enclosures is changed 60 times per hour. Workers inside the cells wear protective clothing and gas masks — oxygen-breathing apparatus for prolonged periods or canister masks for short periods.

Waste disposal has been a problem. Burners and combustion chambers were specially designed for combustible wastes, and flue gases are scrubbed free of boron compounds. All process-vent gases are also scrubbed. Aqueous wastes may be concentrated and hauled away for safe disposal.

Processing equipment. Mild steel, copper and brass are the commonly used materials of construction in processing equipment. However, all metals except aluminum, magnesium, and their alloys are satisfactory. Gasket and seal problems arose from the susceptibility of most rubber and plastic materials to at-

ASSE Elects New Manager, Moves to New Quarters

A. C. BLACKMAN, former head of California's Division of Industrial Safety, on February 16 took over the duties of managing director of the American Society of Safety Engineers. He was elected to the post by the National Executive Committee at a meeting in New York on January 12.

J. B. JOHNSON, the former managing director, remains with the headquarters staff as national secretary of the Society.

On March 1, the Society moved

tack by boron hydrides. Acceptable gasket materials now include some asbestos compositions, Teflon, Kel-F, and metals.

Welded and flanged pipe and tubing are preferable to screwed fittings to avoid leaks resulting from the extremely low viscosity and surface tension of most boron hydrides. Special lubricants had to be developed for pumps and compressors because most boron hydrides are "anti-lubricants," i. e., they are miscible in common lubricants and seriously impair their lubricating qualities.



A. C. Blackman

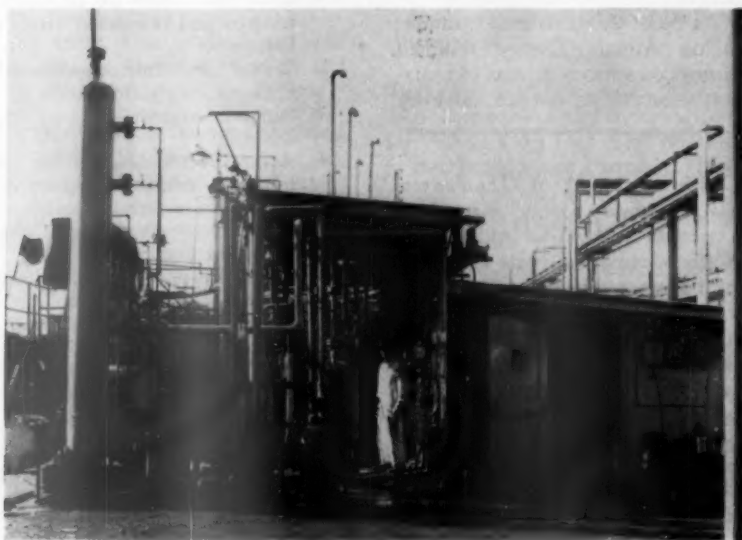
from 425 N. Michigan Ave. to new offices at Suite 1705, 5 North Wabash Ave., Chicago 2. The phone number is DEarborn 2-4024.

Mr. Blackman has a background of more than 27 years in accident prevention work, starting in 1931 when he became a safety engineer for Liberty Mutual Insurance Company.

Except for service in the Army during World War II he remained with Liberty Mutual until 1947 when he was appointed chief of the Division of Industrial Safety, State Department of Industrial Relations by the then Governor Earl Warren of California.

A member of the American Society of Safety Engineers since 1944, he has been active in the San Francisco Chapter.

He is also a member of the American Industrial Hygiene Association; the Industrial Conference of the National Safety Council; the Casualty Council, Underwriters' Laboratories; the Advisory Committee of State Officials to the Atomic Energy Commission; the National Committee on Radiation Protection; the Committee on Public Employees of the President's Conference; and the Safety Committee of the International Labor Organization.



TYPICAL outdoor pilot plant for making boron hydrides.



WIRE FROM WASHINGTON

By **HARRY N. ROSENFELD**, Washington Counsel, National Safety Council

This report is an information service. Publication does not imply National Safety Council approval of or opposition to any legislation mentioned

CONGRESSIONAL organization still being under way, the Executive had the initiative in safety at this stage of the year.

Industrial Safety. Disabling job injuries among American workers in 1958 were at the lowest level since 1939, according to preliminary estimates of the U. S. Department of Labor's Bureau of Labor Statistics. The total number of such disabling job injuries in 1958 was 1,810,000.

Despite a steady upward trend in the employed labor force, the volume of work injuries has decreased 25 per cent from the high of 2,414,000 in 1943. Also the worker-injury ratio has been decreased from 45.7 in 1943 to 29.4 in 1958. And the 1958 injury total was 4 per cent below the revised estimate of 1,890,000 for 1957.

Of the 1,810,000 work injuries suffered in 1958, 13,300 resulted in death on the job; another 75,700 workers suffered some permanent physical impairment; and the remaining 1,721,000 injuries each disabled a worker for one or more full days without permanent ill effect.

According to the Labor Department, the injuries in 1958 resulted in 38 million man-days of disability. When the future effects of death and permanent impairments are added to the immediate loss, the total attributable to the 1958 injuries will be approximately 160 million man-days, or the equivalent to a year's full-time employment of about 515,000 workers.

Manufacturing showed the greatest decrease in volume of injuries, and mining the largest percentage

decrease, although in both instances the fact of lower employment and a shorter work week must be borne in mind. Injuries to workers in transportation decreased about 5 per cent. The only increases in volume of injuries during 1958 took place in the finance, service, government and miscellaneous group of industries; here, volume of employment increased but at a higher rate than injuries. In the federal service, employment and volume of injuries decreased slightly.

In connection with radiation hazards, the chief of the Atomic and Radiation Division of the National Bureau of Standards said the permissible level of radiation was not a scientific problem, but rather of one's "philosophy of risk": how much risk of radiation people are willing to take in return for the benefit from radiation and nuclear energy.

The Joint Congressional Committee on Atomic Energy resumed hearings on various aspects of radiation hazards. A science advisory

THIS SUMMARY of "The Federal Role in Highway Safety" is provided to readers of NATIONAL SAFETY NEWS because the facts and judgments presented in the report are of major interest to safety groups.

The complete report of approximately 460 pages, which contains the data and findings on which the Secretary of Commerce based the conclusions described, has not yet been studied by the Council's technical staff. Therefore, the facts and judgments expressed should not be construed to be the views and recommendations of the Council.

group to the U. S. Public Health Service suggested transference from the Atomic Energy Commission to the Public Health Service of safety responsibilities in the nuclear energy field, with responsibility for promulgating and enforcing radiation safety standards.

Highway Safety. "The Federal Role in Highway Safety" is an extensive report of the U. S. Bureau of Public Roads, which the Secretary of Commerce transmitted to the Congress, in compliance with the requirement of the Federal-Aid Highway Act of 1956 that he investigate and study what action can be taken by the Federal Government to promote the public welfare by increasing highway safety in the United States.

Following is a summary of recommendations and suggestions:

I. Federal Government

The Federal Government should:

1. Establish a Driver Records Clearance Center for recording revoked and suspended driver's licenses;
2. Create an Interdepartmental Highway Safety Board;
3. Support driver-training in the schools;
4. Accept responsibility for a broad, coordinated program of highway safety research;
5. Continue the President's Committee on Traffic Safety; and
6. Coordinate more effectively the highway safety activities within the Federal Government.

II. State and Local Governments

Some of the following items appear as recommendations, others as suggestions, preferences, hopes and other forms of expression indicating views as to desirable practices.

1. Increased attention to improvement of laws and ordinances on

the basis of the model traffic laws and ordinances;

2. Expansion of the minimum standards for motor vehicle safety features, and a more widespread use of required certifications of compliance with such standards;
3. Consideration of raising the minimum age at which drivers should be licensed;
4. Extensive rehabilitation and renewal of traffic signs and marks, with emphasis on uniform sign and signal requirements;
5. More realistic speed control practices, based on engineering studies; and the possibility of lower night speed limits;
6. Greater attention to removal of localized hazards, and the use of modern traffic engineering techniques;
7. Expanded programs of safety education and driver training, especially in high schools;
8. Improvement of systems of traffic accident records;
9. Adoption of vehicle inspection systems;
10. Improved design of existing highways;
11. More adequate provision of police manpower, training and equipment;
12. Strengthening of traffic court status and manpower;
13. Better coordination of official traffic safety programs; and
14. Establishment of special highway safety committees in state legislatures and city councils.

III. Automobile Manufacturers

1. Attention to residues of weakness in automotive design and function; and
2. Attention to safety in the continuing development of vehicle design.

IV. Private Organizations Interested in Highway Safety

1. Continuation of special campaigns for safe holiday driving;
2. Intensification of cooperative efforts on improvements of the content and use of traffic accident records;
3. Reconsideration of existing, and development of new, criteria applicable to the official highway functions;
4. Better coordination of activities of industrial and user organizations in support of official programs of highway safety;
5. Continued public support and promotion of official highway safety programs; and
6. Technical and specialized aid to

official agencies.

V. All Concerned

1. Development of coordinated plan for highway safety, and agreement on respective objectives of government, industry, users and others within plan; and
2. Development of adequate coordination between levels of government, between government and industry, and between government and public support agencies.

Evaluation of Present Situation.

Although there has been a doubling of miles driven since 1941, that year still has the all-time high for traffic deaths (39,969). The report notes this as showing "significant advances in traffic safety in recent years." The chief improvement has been in urban areas, where deaths dropped by one-third; rural traffic deaths, on the other hand, have increased.

Projection for 1975. Foreseeing 110 million vehicles, and 111 million licensed drivers by 1975, the report predicts—on a projection of present trends—51,000 highway deaths in 1975, at a rate of 4.6 (compared with 1956's rate of 5.6), and an economic loss of \$9.5 billion for that year.

Direct Federal Action. "The major challenge to federal action," says the report, is "the establishment of a favorable environment for the conduct of official highway safety activities in state and local government."

Two major proposals are made:

1. **Driver Records Clearance Center.** About 1 per cent of all licenses, or one million, are currently in revoked status; and more than half of the states do not check all applicants on this status. Therefore, it is proposed to establish a Federal Center for effective identification of drivers whose licenses have been suspended or revoked, on a voluntary basis.

2. **Interdepartmental Highway Safety Board** "It would be in the national interest to create a mechanism to provide leadership, guidance, and coordination of existing official highway safety activities." The report recommends establishment of an Interdepartmental Highway Safety Board, under the chair-

manship of the Secretary of Commerce, with its other members being the Secretary of Health, Education and Welfare, the Secretary of Defense, and the chairmen of the ICC and the FCC.

Specified functions of the board would include:

1. Coordination of all official federal highway safety programs and all research activities;

2. Encouraging state and local officials to apply the results of research;

3. Taking the initiative to ascertain the status of federal legislative and administrative needs, make reports to the President and the Congress on national progress in highway safety, and advance proposals for executive and legislative consideration.

The report provides answers to six specific questions raised by the Congress:

1. **Need for Federal Assistance in Traffic Law Enforcement.** "The direct projection of federal authority into highway safety functions . . . is concluded to be impractical and would only weaken state and local authority." However, "Federal action is feasible through cooperation in research on traffic police and court problems and other means for strengthening the highway safety effectiveness of those immediately responsible."

2. **Uniformity of State and Local Highway Safety and Speed Laws.** "Continuing attention to the improvement of model traffic laws and ordinances will require stronger effort to stay abreast of the most successful experience and to meet new conditions as they develop . . . It is recommended that the important work in this area, which is now supported cooperatively by federal government and private sources, be materially increased."

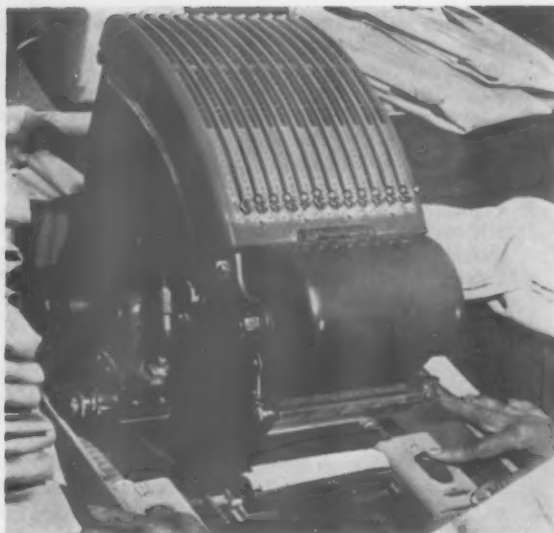
3. **Manufacture of Safe Vehicles.** "Today's motor vehicles are structurally safer than any that have heretofore been manufactured, and the industry is giving increasing attention to many features of the vehicle that add to its safety". However:

"Surely it can be said that today's vehicle is not as safe as it can be made. Its future contributions to safety are likely to be even greater than those of the past . . . A key point to

—To page 92



BEFORE: Foot-pedal-operated marking machine prior to modification suggested by safety committee. Fingers and hands may be injured by accidental tripping of stamping head.



AFTER: Marking machine altered to permit two-hand operation. Both buttons must be pressed simultaneously to trip machine. Operation is faster and safer.

Minor Mishaps Are Symptoms

Reporting, investigating and follow-up have resulted in correction of many hazards and increased respect for the program

OUR COMPANY is a relative newcomer in systematic safety work. We organized our Atlas Safety Committee and entered the inter-plant contest conducted by the National Safety Council in the Greater Los Angeles area early in 1958.

Despite our limited experience, enough already has been accomplished in our plant to prove to us that a properly conducted, management-supported safety program can bring valuable returns such as:

1. Fewer accidents.
2. Reduced medical expense.
3. Lower insurance costs.
4. Reduced production losses, direct and indirect.
5. Improved employee relations and morale.
6. Higher productivity and efficiency.

By **WILLIAM B. ELCONIN**

Director of Public Relations, Atlas Coverall and Uniform Supply Company, Los Angeles.

That's an impressive list of return for efforts expended. There is also the tremendous satisfaction that comes to the company's officials from knowing their organization is fulfilling one of its moral responsibilities to its employees' families and to the community—protecting the health and welfare of its working people.

All companies embarking on a safety program, we assume, quickly become involved with what we at Atlas call the *defensive* phase of our safety work. This concerns educational work to make and keep everyone aware of general safety rules and procedures, job training on specific safety techniques and procedures with existing facilities and equipment, and enforcement of company safety policies and regulations.

This phase of safety work is an absolute prerequisite to any form of success for the entire program; only through such activity can support and participation of employees

be won. Recognizing this fact, we promoted this phase of work vigorously from the moment our program was announced and launched.

There is another phase of safety work—*positive phase*. It consists of probing into every accident or injury occurring, no matter how minor it may appear, to try to detect and eliminate the underlying cause, and to make it physically impossible for that type of accident or others similar to recur.

"As we see it, every minor accident can be considered as a symptom of an underlying problem, a sort of warning notice of potential trouble ahead," explains Morris Gershon, an owner of the company, and its safety director.

"We feel minor accidents lead to major ones if the cause is not eliminated. So we insist on a full report of every accident, and a full investigation of the facts in each case. When we conduct the investigation, we begin the positive phase."



BEFORE: Standard alterations department sewing machine as originally installed. Operator's fingers were too easily drawn over the "toe" guard on "foot" of machine.



AFTER: Sewing machine as operated today. New slotted guard welded to standard "foot" permits close observation of work while keeping fingers outside sewing area.

The positive phase consists of these steps:

1. Physical inspection of the job and equipment or machinery involved in the accident.
2. Where machinery is involved, a check with the manufacturer or his representative to find if safety devices exist to provide protection against recurrences.
3. If devices are suggested, they are checked and tested to see if they solve

the problem. If no such devices exist, we attempt to create or design our own remedy.

One example of the firm's safety committee work involves a stamping machine used in our stock room to place identifying marks in the thousands of work garments processed weekly. These marks are indispensable to effective inventory control. By these marks clothing can be

assigned to each customer, and returned to him at the proper location week after week.

One of our operators suffered a minor accident on one of these machines on July 1, 1958. Her finger was caught in the stamping area and pinched between the lowering stamping head and the stationary stamp pad as she operated the machine.

This was a painful though fortunately minor injury. Although the flesh at the side of her finger was pinched, no bones were fractured, and the skin was not broken.

Had her finger been just a fraction of an inch within the stamping area, a major injury could easily have resulted, because this machine moves rapidly and hits with a tremendous force. It can instantly snap and crush a pencil with its impact.

On July 10, 1958, the injured employee appeared before our committee and explained the details of the accident. A day later a subcommittee inspected the job site. They found the machine was activated by a foot pedal. They also noted the operator's hands and fingers were constantly required to move through the stamping area, spreading garments or tapes for marking.

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LOOKING for hazards. Safety committee members discuss a plant machine during a periodic inspection. Uniforms with prominent lettering, provided by the company, add prestige and recognition to membership on the committee.

IDEAS THAT WORKED

Devices and Ideas to Help Your Safety Program

By Arthur S. Kelly, Industrial Department, NSC



High-visibility hat

WE'VE seen all sorts of ideas for protecting cows and other stock on the farm from deer hunters—such as painting the word "Cow" on a valuable beef property or hanging a red flag over its shoulders. People need protection, too.

In the idea presented here, the main object was to protect employees from hunters who were trigger-happy or whose eyesight was not particularly good. Since the nearest thing to a woods around here is a neon jungle, we decided to see how the hat would show up indoors.

We regret that we cannot portray the aluminum hard hat in full color because it is most spectacular. The paint, a vivid orange, is the one being used to make airplanes easier to see. It was adapted in this instance by Franklin A. Mills, safety engineer, J. Neils Lumber Co., Libby, Montana.

In preparing the hat a coat of white primer is sprayed on, followed by two coats of Blaze Orange, followed by one or two coats of a clear application called Filteray.

Door open—power off

THE following idea was used to help safeguard tissue log saws. The saws were well guarded but it was possible to open the guard door while the saw was running. The Electrical Department of Marathon, division of American Can Company at Neenah-Menasha, devised an electric plug set to eliminate these dangers. With the new electric interlock installed, the power is shut off any time the guard door is opened since the opened door pulls the plug out of the socket and disconnects the power.

Submitted by R. H. Muller, Assistant to Industrial Relations Administrator.

PLUG is pulled out of socket and power disconnected, as operator opens door to tissue log saw.



FEBRUARY WINNER

"A Cabled Warning," was the prizewinning idea in the February issue. The Chicago Works of Bethlehem Steel Company submitted the idea. They used a cable warning device of the type seen on gas station ramps to warn of traffic approaching blind corners.

Clean up and play ball

THIS idea was developed during a campaign for better housekeeping standards. Certificates were scattered throughout the plant in the form of trash. Before the program started, letters were sent to the homes of all employees announcing the idea. Bulletin boards were used, too. Anyone picking up trash and finding one of the certificates could redeem it for a ticket to one of the home games of the local baseball club.

The certificates were numbered in order to tell where they had been found. Provision for the author's signature and a redemption deadline were included. The latter was to prevent embarrassment in the event a certificate turned up after the tickets were no longer good. Certificates were hidden in coke cups, cigarette wrappers, shop towels, and other unlikely places. After the program got under

This certificate is a reward for helping to keep your plant clean and safe. You may redeem this certificate at the Safety Office and receive one ticket to one of the Memphis Chicks baseball games.		
REDEEM BEFORE	CERTIFIED	NUMBER
		00047

way, the shop had been "picked up" so neat and clean it was difficult to find places to scatter the certificates without their being too conspicuous.

This idea was developed at the Memphis works of the International Harvester Company, Farm Implement Division, and was submitted by Q. W. Goode, safety supervisor.



Beat boat hazard

VIBRATION often shakes an outboard motor loose from the transom of the boat to which it is attached. George H. Zick, Menasha, Wis., developed a safety device for holding the motor to the transom. The size shown was made for a 7½-horsepower outboard motor. Mr. Zick reports that he made a number of these for his friends. Any shop could make them quite easily. There is no question that they will prevent a vast majority of lost motors caused by vibration.

What's the safety angle?

Well . . . ever go skin diving for an outboard motor?

X-RAYS IN INDUSTRY

Published by the National Safety Council
425 North Michigan Ave., Chicago 11, Ill.

1. X-rays are used extensively in industry for research, inspection, testing, and product control. Their employment in industry and the use of higher energies of X-rays are increasing rapidly. X-ray diffraction units, fluoroscopic installations, and certain radiographic techniques all function by utilization of X-rays. They are also encountered as by-products in the operation of various devices, such as electronic tubes, electron microscopes, and atomic particle accelerators.

2. One of the most prominent uses of X-rays in industry is for inspection of materials to locate internal defects, such as porosity or cracks. Such inspection is usually done on X-ray installations which have permanent protective barriers and shielding to protect personnel in the area from radiation exposure.

3. Permanently installed X-ray units must be housed in areas or separate buildings designed and constructed in accordance with the requirements of NBS Handbook 50, *X-Ray Protection Design*, published by the National Bureau of Stand-

This Data Sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This Data Sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

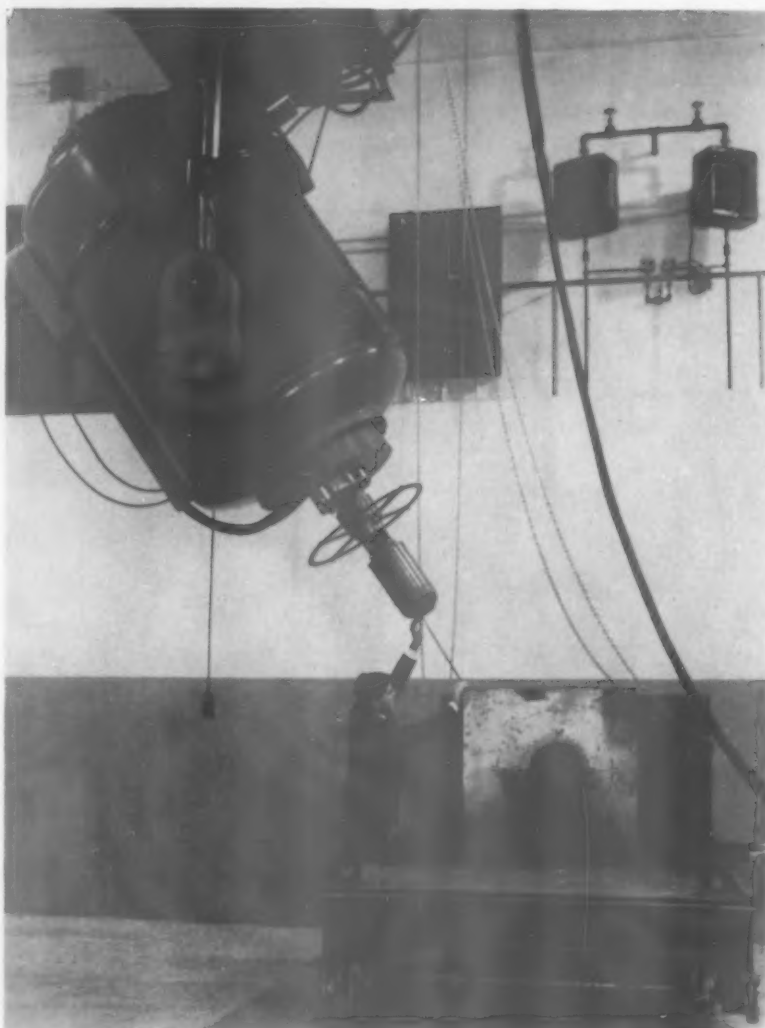


Figure 1. A two-million-volt industrial X-ray unit that is permanently installed in a laboratory room. The room has built-in shielding to confine the radiation. (Courtesy General Electric X-Ray Corp.)



Figure 2. Building designed and constructed to house a permanently installed two-million-volt industrial X-ray unit. Adequate shielding is a part of the structure. (Courtesy Babcock & Wilcox Co.)

ards. This type of equipment should be operated in accordance with recommendations in NBS Handbook 60, *X-Ray Protection*.

4. In some cases, X-ray equipment must be taken to the material to be inspected. The problem of protecting employees who work with or near portable X-ray equipment is more difficult than that encountered with permanent installations.

5. This data sheet presents general procedures for proper protection and control of personnel, and indicates precautionary measures required during the operation of industrial X-ray equipment.

6. The recommendations set forth should be considered minimum requirements for normal use of industrial X-ray equipment. Extraordinary or special applications may require additional precautions. Before such operations are undertaken, therefore, the specific installation should be surveyed, to assure compliance with state and local laws governing the use of ionizing radiation.

Medical Examinations

7. Applicants for radiological work should have a complete pre-employment medical examination, including a differential blood examination and such other special de-

terminations as are deemed advisable by medical authorities and NBS Handbook 60.

8. A blood count, and possibly a complete medical examination, is recommended for an employee whose film badge or other monitor-

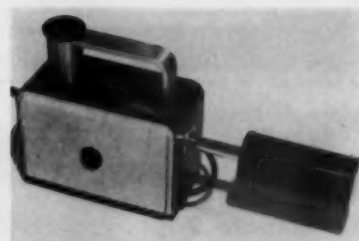


Figure 4. Ionization chamber (condenser r-meter) for monitoring radiation. (Courtesy Electronic Aides and Victoreen Instrument Co.)

ing device indicates that he has received a dose above the maximum permissible. All records of medical examinations should be kept a part of the employee's permanent medical file, so that reference can be made to them at later dates.

9. The frequency of physical examinations should be decided on the basis of the conditions of equipment installation and amount of exposure. Medical authorities should be kept informed of the conditions and quantities of X-radiation to which employees are exposed so that they can determine the interval between examinations.



Figure 3. A portable industrial X-ray unit being prepared for shooting an exposure of a propeller component on an aircraft engine. (Courtesy Douglas Aircraft Co., Inc.)



Figure 5. Pencil-type dosimeter used to indicate hourly or daily dosage received.

Permissible Dose

10. The standard international units for expressing quantities of X-radiation as measured in air are the *roentgen* and *milliroentgen*. The roentgen is equal to 1,000 milliroentgens. The term "measured in air" means that the radiation rate is determined by placing an instrument such as a condenser r-meter in the path of the X-ray beam. No other solid material, including the human body, should be nearby because it will scatter the radiation and an incorrect reading will result.

11. Since the roentgen is not a unit of absorbed dose, another term called the *rad* is often used. The *rad* is the unit for measuring the absorbed dose in matter. In other words, the *rad* is a measure of the energy absorbed in any medium.

12. Because the different types of radiation vary in energy and in ionizing ability, certain kinds are biologically more effective than others. Consequently, each kind of radiation has its own *rbe* (relative biological effectiveness) factor. This factor multiplied by the dose in rad's results in a biological dose

termed the *rem* (roentgen equivalent man.) Thus, the *rem* compensates for differences in ionization and energy. The *rbe* factor for X and gamma radiation of up to three million electron volts of energy can be assumed to be 1, so that a dose of 1,000 millirads of either type of radiation is approximately equal to a dose of 1,000 millirems.

13. Generally, the radiation and radiation rate figures are reported in milliroentgens and milliroentgens per hour, respectively, for convenience, even though data on body dosages and rates of dosage are expressed in terms of millirems and millirems per hour, respectively.

14. Permissible doses should not exceed those given in NBS Handbook 59 or the latest supplement to the Handbook. The present basic recommendation for whole-body exposure is that, at any age, a person's *total accumulated* industrial exposure to ionizing radiation (in rems) should not exceed five times the number of years beyond age 18, that is:

$$5(\text{age}-18)$$

provided that no annual increment exceeds 15 rems. Thus, a person who starts to work at 18 years of age and is exposed 50 weeks a year should receive an *average* whole-body exposure of 100 millirems or less per week.



Figure 6. A film badge used to record accumulated dosage received.

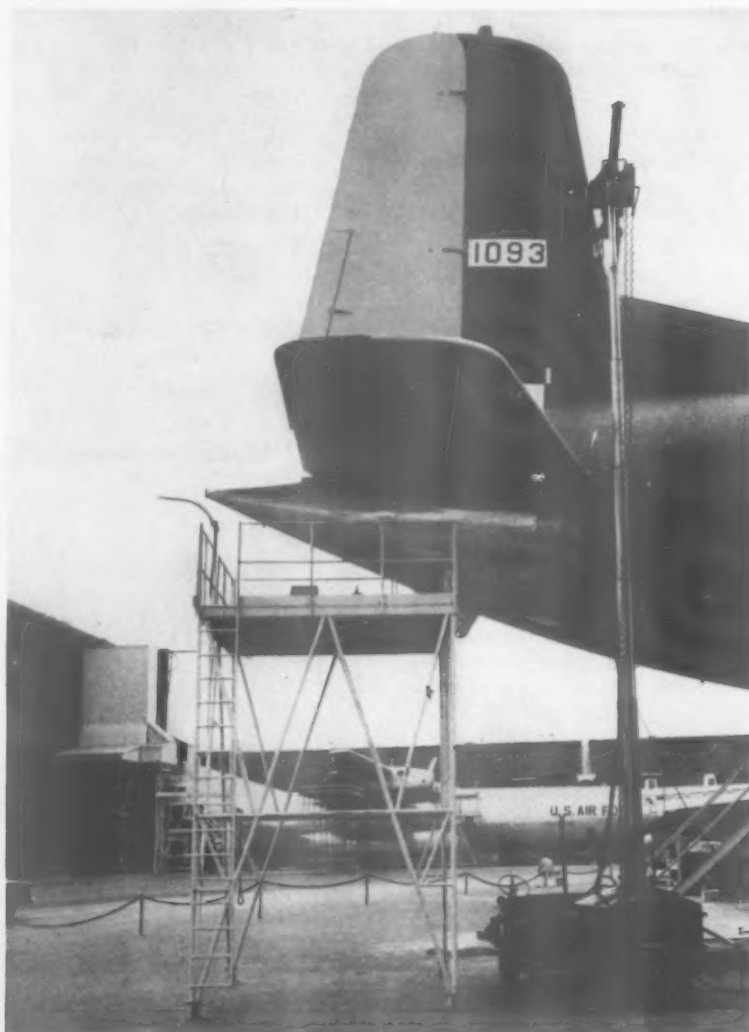
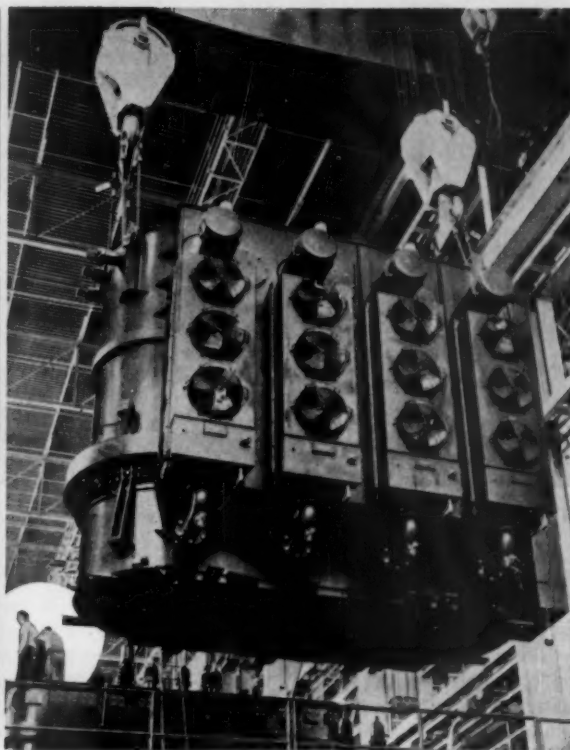


Figure 7. A portable industrial X-ray unit making an exposure of the tail section of an aircraft. Personnel are restricted from the hazardous area by a rope barricade. (Courtesy Douglas Aircraft Co., Inc.)

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Figure 8. Various types of X-ray warning signs for positioning at strategic locations. (Courtesy Eastern Air Lines, Inc.)

15. If the above restrictions for accumulated dosage are not exceeded, a weekly whole-body dose of 300 millirems is acceptable. If the dose in any one week exceeds 300 millirems, a dose of 3,000 millirems in 13 weeks may be accepted. The 13-week period may start at the beginning of the calendar quarter or at the beginning of the week during which the permissible weekly dose was exceeded.*

16. Five rem's (5,000 millirems) is to be the *average* yearly limit of occupational exposure of the blood-forming organs, gonads, and lenses of the eyes to external sources of ionizing radiation. The *average* yearly exposure of the skin is to be 10 rem's (10,000 millirems).

17. The maximum permissible total weekly X-ray dose to the skin of the hands, forearms, feet, ankles, head, and neck is to be 1,500 millirems (milliroentgens). Particular care should be taken to see that the dose to the lenses of the eyes does not exceed the average yearly dose of 5,000 millirems.

*Revised recommendations of the National Committee on Radiation Protection, Handbook 59, *Permissible Dose from External Sources of Ionizing Radiation*, National Bureau of Standards, January 8, 1957.

18. The foregoing figures represent the maximum values. Personnel in radiography should avoid unnecessary exposure to radiation and should work as closely as practicable to a "zero" exposure. It is particularly important that exposure of other personnel in uncontrolled areas be kept below one-tenth the permissible dose.

19. In no case should there be exposure to the intense useful beam of X-radiation because the dose rate may be extremely high—as high as 10,000 roentgens per minute. Not only may permanent skin injury result from such exposures, but injury may occur to deeper tissue even where there is no permanent skin damage.

Radiation Monitoring

20. The doses of external radiation received by personnel should be checked either continuously or periodically or both, depending upon the circumstances. Radiation detection instruments, such as dosimeters, film badges, and ionization chambers (condenser r-meters), should be used to determine doses. Survey meters that operate on the ionization-chamber principle may be used to survey dose rates in areas where leakage or inadequate shielding is suspected. These instru-

ments should be rated for the energy of radiation which they are expected to measure.

21. The radiation survey meters are calibrated in various ranges of milliroentgens (mr) per hour, depending upon the radiation sources to be measured. After completion of an X-ray equipment installation, these meters are used for conducting a survey to establish safe working distances from the radiation source. The installation should be surveyed periodically thereafter.

22. Surveys should be made at least once each year or whenever there is a change in material, size, or shape of objects radiographed in a radiography setup. Changes in procedure can result in extremely important scattered radiation even though the basic X-ray installation remains the same.

23. The dosimeter is usually calibrated in milliroentgens (mr) and is used to indicate hourly or daily dosage received. Each person working in radiation areas should carry two dosimeters. If one instrument should drift or discharge slowly, the other one can serve as a check reference. Permanent individual records of daily doses should be maintained.

24. A properly calibrated film badge should be worn by each person subjected to radiation, to record the accumulated dosage received. The length of time a film badge should be continuously worn is dependent upon the level of radiation to which the employee will be exposed. This level is determined by meter surveys and operating experience.*

25. The precautions necessary to protect industrial X-ray technicians are relatively complex and should be thoroughly understood and adhered to. Those responsible for safety measures should fully realize the dangers involved, not only to the technicians themselves, but also to bystanders, whose maximum permissible dose is one-tenth the maximum permissible dose for those occupationally exposed.

*Discussed in detail in NBS Handbook 57, *Photographic Dosimetry of X- and Gamma Rays*, National Bureau of Standards.

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Establishing Safe Distances

26. When portable X-ray equipment is being used outside of permanent installations, the factor of safe distances becomes critical. In such cases, a careful radiation protection survey* should be made with an approved survey meter by a qualified physicist or technician. This survey will provide the necessary information to establish minimum safe distances that personnel must abide by.

27. A safe distance is the distance nonoperating personnel must maintain from the radiation source in order to receive no more than two millirems in any one hour and no more than 100 millirems in any seven consecutive days.**

28. The distances specified for a given job may not necessarily remain constant. Changes in such factors as kilovoltage, size of the X-ray beam, location of the object being inspected, and type and size of the shielding have a direct relationship to the intensity or direction, or both, of the emitted X-radiation.

29. Hazardous areas, as indicated by the protection survey, must be barricaded or roped off to form a restricted section which must not be entered by bystanders. Large signs bearing the standard radiation symbol, with either "Warning" or "Keep Out" imprinted on them, should be placed at the boundaries of the restricted area.

30. Blinking or rotating amber lights should be strategically placed at the boundary lines. The lights should be turned on to allow for a warning period before the X-ray device is used and should be left on during the X-ray operation.

Safe Practices

31. A qualified physicist, radiologist, or technician should be in charge of the X-ray operation and

should be given full responsibility for establishing and maintaining restricted areas. Clothing that this person and his assistants wear should be of a distinctive color so that unauthorized personnel can be quickly seen and removed from the "off limits" area.

32. The work station of the X-ray equipment operator should be so located that he can at all times see all boundaries of the restricted area, or he must have an assistant to keep watch for him.

33. When the X-ray operation has been completed on permanently installed equipment, the disconnect switch on the X-ray apparatus should be turned "off" and locked in that position. Portable equipment should be disconnected from its primary power source when the operation has been completed, to ensure against accidental emission of X-radiation.

34. The equipment used for identifying restricted areas should not be tampered with, nor altered without knowledge and authorization of the X-ray personnel in charge of the operation.

ACKNOWLEDGMENT

The original draft of this data sheet was prepared by John Dickson, Chairman of the Engineering Committee of the Air Transport Section, National Safety Council. Content has been extensively reviewed by members of the Executive Committees of the Air Transport Section and the Aeronautical Industries Section, by other members of the National Safety Council, by governmental health physicists, and by representatives of chapters of the American Society of Safety Engineers. The data sheet has been approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.

PERSONALS

News of people in safety and related activities

DR. JEAN S. FELTON has been appointed professor of occupational health at the University of California Medical Center at Los Angeles, in both the School of Public Health and the Department of Preventive Medicine, effective September 1, 1958.

Prior to Dr. Felton's affiliation

with UCLA, he was professor of preventive medicine (occupational medicine) at the University of Oklahoma Medical Center, and for eight years before that, medical director of the Oak Ridge National Laboratory, Oak Ridge, Tenn.

A new Division of Occupational Health will be initiated in the School of Public Health, in which a graduate curriculum will be developed, utilizing not only the faculty and facilities of the Medical Center, but the personnel of the great number of industries in the Los Angeles metropolitan area. Research in the utilization of the physically handicapped, work stress, and the psychological effects of noise will continue in the new division.

D. D. GORDON-CARMICHAEL, a former general chairman of the National Safety Council's Air Transport Section and a member of the sectional executive committee for several years, has been appointed chief security officer for Trans-Canada Air Lines with headquarters in Montreal.

Born in Cork, Ireland, and educated at the Royal Military College, Sandhurst, Mr. Gordon-Carmichael served as a lieutenant in the Royal Warwickshire Regiment and as manager of a rubber plantation in Malaya before joining TCA at Winnipeg in 1938.

During World War II he served in India and Europe and was discharged in 1945 with the rank of major. Rejoining TCA, he became fire and safety assistant.

ALFRED B. AUERHAAN, of Brooklyn, N.Y., formerly safety engineer for Todd Shipyards, Eastern Division, has been appointed director of safety for the New Haven Railroad, with headquarters at New Haven, Conn.

Sindo E. Cavalieri of Milford, Conn., who has been safety agent, has been named assistant director of safety.

A native of Boston, Mr. Auerhaan has been engaged in safety

*As defined in Standard NI. 1, *Glossary of Terms in Nuclear Science and Technology*, American Standards Association, New York 17, N. Y.

** Title 10—Atomic Energy, Chapter 1—Atomic Energy Commission, Part 20, "Standards for Protection against Radiation," *Federal Register*, Volume 22, Number 19, Jan. 29, 1957, National Archives, Washington 25, D. C.

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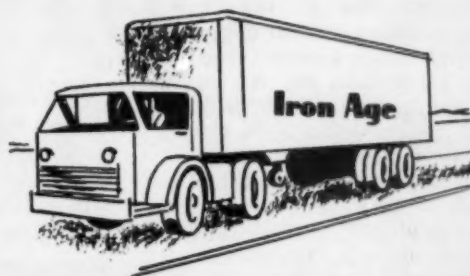
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work for about 20 years, since his graduation from New York University. He served as safety engineer for several other companies before going to Todd Shipyards in 1955.

Mr. Auerhaan is a member of the National Safety Council; the American Society of Safety Engineers, and an executive board member of the Metropolitan Chapter; a member of the Veterans of Safety; the Greater New York Safety Council; and the first aid and safety committee of the American Red Cross, Brooklyn Chapter.

He has had 33 years' service with the Boy Scouts of America and is a member of the Greater New York Council of that organization, as well as district chairman for the Atlantic District, Brooklyn Council.

* * *

DR. WILLIAM A. FELLNER has been appointed medical director of General Motors Central Office, Detroit. He replaces DR. WILLIAM J. FULTON, who retires February 1 under the provisions of the General Motors Retirement Program.

Dr. Fellner has been medical director of the Fisher Body Division plant in Pontiac, Mich. A native of Benton Harbor, Mich., he was graduated from the University of Michigan Medical School in 1953.

Dr. Fulton had been with General Motors for 23 years and medical director of Central Office since 1946. Prior to joining General Motors, he spent 13 years in private medical practice in Baltimore.

* * *

ALAN L. KLING has been appointed Director of Loss Prevention for Olin Mathieson Chemical Corporation. In the newly-created staff position, Mr. Kling will be responsible for coordinating policies and programs relating to the safety of personnel and the protection of property. Reporting to him will be the managers of fire protection, insurance, and safety.

Mr. Kling had been assistant safety director of American Cyanamid Company since 1953. Prior to that time he was safety director for Cyanamid's Bridgeville, Pa., plant.

From 1948 until early 1951 he was assistant to the owner of Hoff Lumber Company, Horseshoe Bend,

Idaho, and from 1942 to 1948 was with Factory Mutual Laboratories in Boston.

Mr. Kling is a graduate of St. Olaf College, Northfield, Minn. He was a teaching Fellow in chemistry at Massachusetts Institute of Technology.

Mr. Kling is vice-president of the New York chapter of the Society of Fire Prevention Engineers and a member of the executive committee of the New York chapter of the American Society of Safety Engineers. He serves on many technical committees developing standards for the safe operation of industrial plants.

* * *

ALLEN W. FIELDS, Jr., was recently appointed staff assistant in charge of the Post Office Department's Industrial Safety and Fire Prevention Program. He is in the Division of Safety and Health at Department Headquarters, Washington, D. C.

Mr. Fields graduated from the Virginia Polytechnic Institute with a B. S. degree in Industrial Engineering. He was previously connected with American Brake Shoe Company and Eastman Kodak Company in industrial engineering work.

Mr. Fields has served with government agencies in various capacities. His most recent assignment was assistant director of safety for the United States Army Engineer Center, Fort Belvoir, Va.

Mr. Fields has been active in various safety organizations. He has been a member of the American Society of Safety Engineers since 1955. He has also served as a member of the Federal Safety Council, Potomac Area, since 1957. With the Council he has served as secretary and later as vice-chairman.

* * *

BERT WIGGINS has resigned as supervisor of safety, Chesterfield Plant, National Aniline Div., Allied Chemical Corporation, Hopewell, Va., to become manager of the safety and health department of Thomas A. Edison Industries, McGraw-Edison Company, West Orange, N.J.

Mr. Wiggins has 22 years' ex-

perience in accident prevention, including construction, paper-making, chemical, industrial, insurance, and airfield safety.

He is a member of the American Society of Safety Engineers (Metropolitan Chapter), Veterans of Safety, and National Fire Protection Association.

* * *

DR. ROBERT D. CUNNINGHAM has retired as medical officer of the 12th U. S. Civil Service region, San Francisco, after 22 years of government service.

At an all-employee meeting at the Customs House on December 19, Dr. Cunningham received a certificate of merit for his untiring efforts on "Operation Safety," a continuing campaign to reduce on-the-job accidents among federal workers.

In addition to his 11 years with the U. S. Civil Service, Dr. Cunningham had tours of duty with the U. S. Civilian Conservation Corps, the U. S. Indian Service, and served 3½ years with the U. S. Army in the South Pacific during World War II.

ASA Officers For 1959

J. R. TOWNSEND, special assistant, Office of Assistant Secretary of Defense (Research and Engineering) took office January 1 as the American Standards Association president. He succeeds H. THOMAS HALLOWELL, Jr., president, Standard Pressed Steel Company, who had served the association for three years.

FRANK H. ROBY, executive vice-president of Federal Pacific Electric Corporation, is the association's newly-elected vice-president. Also taking office are two new directors: CHARLES W. BRYAN, Jr., president, Pullman-Standard Car Manufacturing Company; and T. T. MILLER, president, Polymer Chemical Division, W. R. Grace & Company.

Mr. Townsend, a past president of the American Society for Testing Materials, is an authority on standards work. He has served with the Bell System for 38 years and in 1952 was given leave of absence to become director of Materials

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Oxygen in Resuscitation

—From page 27

the amount of oxygen dissolved in plasma.

Hemorrhage. The foremost problem in hemorrhage is, of course, to stop the bleeding and to restore the volume of blood by transfusion of whole blood or plasma. Supplemental oxygen is of help to a limited extent, since normal breathing provides sufficient oxygen to supply the decreased amount of hemoglobin remaining in the blood stream after hemorrhage.

However, of greater importance is the increase of dissolved oxygen which will occur in plasma. Since hemorrhage is frequently accompanied by shock and subsequent pulmonary edema, oxygen therapy is desirable, particularly if voluntary respiration is depressed.

Carbon monoxide poisoning. Hemoglobin shows an affinity for carbon monoxide which is approximately 300 times stronger than its affinity for oxygen. It is therefore of utmost importance that the hemoglobin-carbon monoxide combination be broken as quickly as possible. A high percentage of oxygen should be received by the lungs, for it is possible to displace the carbon monoxide by oxygen provided the tension of oxygen is high and the tension of the carbon monoxide is low.

Administration of carbon dioxide-oxygen gas mixtures has been recommended.⁶ Such mixtures contain 90 to 95 per cent oxygen and 5 to 10 per cent carbon dioxide, and they are administered by means of a face mask. It is believed that carbon dioxide aids in releasing the carbon monoxide from the hemoglobin molecule. At any rate, if such a gas mixture is not available in an emergency, oxygen should—and can—be safely and appropriately used.

The amount of carbon dioxide a victim of carbon monoxide poisoning should receive might well be left to the discretion of the attending physician, for the physician can carefully watch the subject to insure that harmful levels of carbon dioxide do not accumulate within the subject.

The victim of carbon monoxide poisoning presents a severe problem in an emergency. He will undoubtedly hyperventilate due to his inordinate hunger for oxygen, unless too comatose and depressed to do so. Furthermore, while hyperventilating, he may "blow off" excessive amounts of carbon dioxide—thereby leaving his respiratory centers insufficiently stimulated.

These reasons clearly show the victim of carbon monoxide poisoning to be a case for the hospital where careful attention can be given to his carbon dioxide balance and other needs.

In cyanide poisoning there is no interference with the carriage of oxygen by the blood. However, the tissue-enzyme mechanisms which are responsible for normal tissue respiration are poisoned. Such chemicals as methylene blue, amyl nitrite, sodium nitrite, or thiosulfates are used to counteract the effect of the cyanide.

In poisoning of this type, adequate oxygenation of arterial blood can usually be obtained by encouragement of deeper breathing. Administration of supplemental oxygen is desirable, particularly if the victim is depressed or in shock. The primary treatment, however, is directed toward the removal of cyanide from the tissues.

The long-taught back-pressure arm-lift method and the newly promoted mouth-to-mouth method of artificial respiration can both be effective.

The back-pressure arm-lift method has a disadvantage in that both of the rescuer's hands are occupied in applying pressure to the back and lifting the arms, thereby making it difficult for the operator to keep the airway open. It is, however, a "push-pull" method which provides active phases of both inspiration and expiration.

The mouth-to-mouth technique provides a positive form of insufflation of air from the rescuer into the victim. The rescuer provides around 10,000 cc of expired air per minute which contains 18 per cent (i.e., 1,800 cc) of oxygen and thereby can maintain adequate blood-oxy-

gen saturation in the victim.⁷ Another advantage of this method is the fact that the rescuer's hands are used to hold up the jaw and thereby maintain a clear airway.

This technique also has certain disadvantages—primarily esthetic. Some persons may be reluctant to come into such intimate contact with persons apparently dead or for some other reasons. During administration of this technique, it is also possible to blow air into the victim's stomach, and this air must be expelled by pressure of the abdomen. Unfortunately, the expelled air may carry with it some of the stomach's gastric contents; and the resultant disagreeable situation may make it difficult for some rescuers to perform this method of artificial respiration.

Types of Apparatus

A number of resuscitators which provide 100 per cent oxygen through an oro-nasal mask are available in the United States. These resuscitators provide artificial respiration by one of two methods:

1. Alternating positive and negative pressures are applied through the mask to the mouth. The positive side of the cycle inhales for the victim by blowing oxygen into the lungs, and the negative side of the cycle assists in exhaling.

2. Intermittent positive pressure is used to provide inhalation. Exhalation in this case is accomplished by recoil of the thoracic cage. Resuscitators operating by either method can also be used to supply a flow of nearly pure oxygen for inhalation by the subject who is able to breathe without outside assistance.

Three basic types of devices are available for emergency use:

1. **The rubber or plastic oro-nasal face mask** which fits over the mouth and nose—such as the BLB mask. Openings are located on either side of the mask. Outside air entering through these openings is mixed within the mask with oxygen from its source. In addition, these holes allow a part of the victim's expired air to escape. The mask is connected either to a rebreathing bag and to the oxygen source or to the rebreathing bag which in turn is connected to the source of oxygen.

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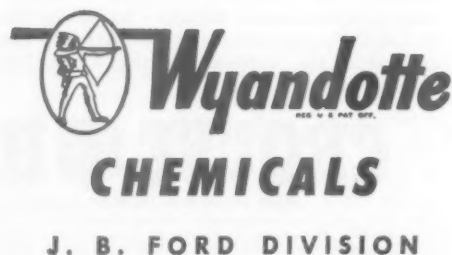
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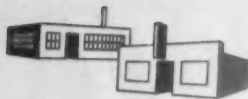
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SMALL BUSINESS and ASSOCIATIONS

By A. M. Baltzer and John T. Curry

Small Business Program Staff, National Safety Council

Are Crutches Needed?

An article in *Dun's Review and Modern Industry* for December 1958 describes the findings of a survey on business sentiment made last November of 1,323 small and medium-sized concerns selected at random in 83 cities.

A significant point was that 47 per cent of the executives claimed they needed no help, particularly from government agencies.

The extreme case was made by one proprietor: "I'll make my own mistakes and I'm willing to pay for them." The typical response was: "I know my business better than anyone."

Perhaps the reason for the survey, hidden or otherwise, colored the responses from these self-sufficient businessmen; but in the field of accident prevention and insurance costs, we have observed they do need more help. Information—or lack of it—supplied on questionnaires dealing with insurance costs and safety activities indicates a gross lack of knowledge of safety.

Too many businessmen do not even know their workmen's compensation insurance costs, and too many of these men do not realize that a few simple steps to control work injuries can save in direct and indirect costs.

Apparently, we not only have to alert them to this problem, but also must overcome their reluctance to accept help from outside agencies.

Pendulum Swings

The treasurer of a small sheet metal fabricating plant issued an interoffice memorandum to other executives which said, in part:

"I just signed a check for \$6,952, representing a penalty premium on our workmen's compensation because of our poor accident experience last year. In a previous year, because of our good experience, we received a 'bonus' of \$5,200 on our insurance."

Here is a difference of more than \$12,000 in direct insurance costs, not to mention all the indirect losses between a good and a bad year. It figures about \$100 per employee per year more than normal insurance costs.

Safety does pay! This company is more fortunate than many in recognizing this elementary fact, and is now taking steps to reduce its losses through a hard-hitting safety program.

Put Safety Into Your Journals

Our engineers and writers are ready to help with publicity on either the promotional aspect of safety—accident costs, management's responsibility, the successful application of industry-wide programs—or on the more technical phases, such as fire prevention, machine guarding, and safe use of electrical equipment.

Frequently, we can supply material of a general nature complete with illustrations which can be used "as is." Where necessary, our specialists can adapt material on general problems to your specific needs.

For example, in an issue of the *National Furniture Review*, one of our staff engineers prepared an article on what to do in case of store emergencies, from flash fires to falls due to curled door mats.

Have your association journal editors get in touch with us for appropriate material.

Posthumous Honor To H. F. Reinhard

Through action of the International Acetylene Association board of directors and John Motley Morehead, a special Morehead Medal was created to recognize Herb Reinhard's 27 years as secretary of I.A.A. and his long and devoted service to his industry and the cause of safety. As his many friends know, Herb died suddenly last May.

Award of the medal, established in 1922, was made to Mrs. Reinhard at a special luncheon in New York, February 17, attended by officers of I.A.A. and some of Herb's closest friends. It is fitting that this high honor be added to those previously bestowed. Herb's enthusiastic participation in the work of the National Safety Council, including his several years' leadership of our Small Business and Associations Committee, was climaxed by the Council's Award for Distinguished Service to Safety in 1955.

New Committees

At the New York meeting of the Small Business and Associations Committee, Chairman Clyde Schluter appointed two special committees:

Association Awards. John M. Convery, chairman, National Association of Manufacturers—to revise the award rules, to assist in screening and judging entries, and to advise on award presentations.

State Association Programs. Grover W. Ponton, chairman, Hardware Mutuals—to secure help of insurance engineers and local safety councils in stimulating and advising state and local associations.

It is expected that the two committees will be very helpful in stepping up the Council's efforts in these important areas of association work.



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Now . . . at very little cost, you can equip your vehicles with safety fusees of the type usually used by the railroads. These fusees supply light when it's needed, stand guard against hazards on the highway.

Many sizes are available for trucks or cars. They burn—even in the rain—up to a half hour, depending upon size. We'll gladly send more information and names of products containing Du Pont Strontium Nitrate. Just fill out and mail coupon below. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Room N-2543, Wilmington 98, Delaware.



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

GRASSELLI CHEMICALS DEPARTMENT

National Safety News, April, 1959

Circle Item No. 15—Reader Service Card



Every automobile, every truck or bus . . . every conveyance on the highway can now be equipped for an emergency stop at night. When lights fail or visibility is limited . . . too often the result is loss of life and destruction of property.

You can buy safety fusees in automotive supply stores or from other suppliers of safety equipment.

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Grasselli Chemicals Dept., Room N-2543, Wilmington 98, Del.

Please send more information and names of manufacturers of safety fusees containing Du Pont Strontium Nitrate.

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Salvaging the Problem Drinker

There are nearly two million of them in industry—from hourly wage up to executive levels. Their skills are worth conserving

PROBLEM EMPLOYEES create confusion entirely out of proportion to their numbers in industry.

Common types of problem employees are those with uncomplicated nervous conditions, personality disturbances, or drinking problems. The employee with a drinking problem is the most complex, since the effects of drinking are often hidden and attributed to other causes.

Alcoholism is costing industry and business millions of dollars.

Its cost can be measured in scrap materials, wasted man-hours, lost customers and executive inefficiency. The problem drinker—and there are about two million of them in industry—has become a major industrial relations problem.

What is a problem drinker?

He is a person whose excessive drinking interferes repeatedly with his health or personal relations and whose work is thereby reduced in efficiency and dependability. He may be a key executive, an engineer, a foreman or a skilled worker. Problem drinkers are not necessarily alcoholics; all alcoholics are problem drinkers.

Stages of Alcoholism

The problem drinker can be helped but, as in any disease, the symptoms must be recognized first. The steps of an alcoholic's progress show a definite pattern of drinking

behavior. By recognizing these steps and taking early action, industry can cut its losses due to problem drinking.

Let us look at a profile of the problem drinker as prepared by the Yale Center of Alcoholic Studies under the direction of Mr. Ralph C. Henderson, industrial consultant.

Pre-Alcoholic Stage. The first step toward alcoholism begins when drinking is no longer social but psychological—a release from tension and inhibition. Though in reasonable control of his drinking, the problem drinker begins to show a definite behavior pattern. Pre-alcoholic symptoms include:

1. Gross drinking behavior
2. Blackouts
3. Gulping and sneaking
4. Chronic hangover

Early-Stage Alcoholism. Until now the problem drinker has been drinking heavily but not always conspicuously. More important, he is able to stop drinking when he chooses. But beyond this point, he develops symptoms of early-stage alcoholism with increasing rapidity. These include:

5. Loss of control
6. Alibi system
7. Eye-openers
8. Changing the pattern
9. Antisocial behavior
10. Loss of job and friends
11. Seeking medical aid

Late-Stage Alcoholism. Until he reached this point, the alcoholic had a choice—to drink or not to drink—though once he began, he had no control of his drinking. In the later stages, there is no choice; he must drink however and wherever he can. Symptoms of this stage are:

12. Benders
13. Tremors
14. Protecting the supply
15. Unreasonable resentments
16. Nameless fears, anxieties
17. Collapse of the alibi system
18. Surrender process

Are these problem drinkers safe? What is the relationship of alcoholism and accidents?

Authorities disagree. However, the consensus seems to be that the accident rate of alcoholics exceeds that of non-alcoholics. It is well known that alcohol slows down the reflexes, interfering with the efficient performance of both mental and physical activities.

Case Histories

Let us take a look at a few actual cases.

Case No. 1 is 43 years old, married and the father of four children. He is a good mechanic and has worked at the same company for 16 years. During this time he has gradually developed into a problem employee due to his increased drinking. He has also developed an anti-social attitude toward fellow employees or anyone who tries to discuss his problem with him.

He has been warned by his supervisor and the industrial relations department. Fellow employees continue to cover up for him, as do his family and friends. One day he reported for work exceptionally hung over from the night before.

During the hours of work he was assigned to repair an elevator gate. He was in a hurry to finish the work and get out of sight, and his mental activities were not up to par. He did not check to see the elevator was shut down, but climbed on the

By J. E. LAUGHLIN

Manager, Plant Protection Department, The Firestone Tire and Rubber Company, Akron, Ohio. From a paper presented before the Rubber Section, 46th National Safety Congress, October 21, 1958.

NEW PERFECTION IN PROTECTION!

WELSH AIR-RAIDER

The first all-plastic respirator . . . Bureau of Mines Approval 2175. Half the weight; less inhalation and exhalation resistance; longer filter life. A new dimension in respirator comfort and performance.



WELSH UNIBRIDGE

A new concept in eye protection. One bridge instantly fits more than 95% of employees. Eliminates time consuming fitting adjustments . . . cuts inventory requirements . . . adds new comfort.



WELSH TWO-TONE UNIBRIDGE

New, exclusive . . . the ultimate in eye protection! Combines safety with outstanding wearer appeal. Designed to make plant eye protection programs work effectively.



WELSH ZEPHYR

New, increased working visibility . . . greater top ventilation! More comfortable, more efficient soft-side eye protection. The first major improvement since the origin of the soft-side.



WELSH CYCLOPS

The ultimate in comfort, fit, visibility in a one piece aperture welding goggle. Soft, resilient, one piece, opaque frame molds comfortably to welder's face. Simplified lens holder permits easier changing of filter and cover plates.



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As New As

WELSH NEWS

Welsh Invites You to try perfection in protection. From Welsh research and development comes a bold new approach in safety products. New modern materials and techniques used by Welsh assure more effective protection. Designed for wearer safety and comfort . . . tested for perfection . . . Welsh safety products make plant safety programs more effective.

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HOTEL STATLER
New York, N. Y.

gate and stuck his head in the shaft just as the elevator came down.

Fortunately, he escaped with a broken jaw and head lacerations. This disabling injury would not have happened, if he had been in possession of his faculties.

Case No. 2, a 28-year employee, reported to the medical department that he had fallen against some machinery. He complained of chest pains, and an examination showed two fractured ribs. Since he had a record of problem drinking, an investigation was made.

It showed he had been drinking and, while attempting to wash windows at home, had fallen off a step-ladder, striking his ribs on the edge of the ladder. A short time after reporting for work he claimed a job injury. But for the investigation, his injury would have been classified as a lost-time case and charged against the record.

Many similar cases could be cited. However, there is a scarcity of evidence about the problem drinker and industrial accidents. In 1946, Dr. E. M. Jellinek, then director of the Yale School of Alcoholic Studies, said:

"Surveys made by our research group and by other investigators showed that the 1,370,000 inebriate laborers in the industries accounted for 1,500 fatal accidents at work and 2,850 fatal accidents at home, in public places and in traffic, or a total of 4,350 fatalities. This is a fatal accident rate of 321 per 100,000 men, or more than twice that of non-alcoholic laborers in the same occupation."

These figures applied to 1943—a war year. Whether the employee was killed on or off the job makes no difference; the loss to industry is the same in that the services of the employee are lost. A company has an investment in each employee. The loss is serious also from the insurance and hospital angle, as well as for industrial compensation paid by industry.

Facts about Alcoholism. The 1957 report of the National Council on Alcoholism shows:

THE THINKING MAN

DO YOU THINK only when buying a pack of butts—or do you hedge your actions so as to stay operational in the face of all adversity? In other words, Mac, do you keep an ace in the hole?

It's common practice for us to underrate or over-simplify a bit and get had before wising up. Going off half-cocked, making with the big wheel and deal, making promises, taking chances, then having to retrench or renege when asked to put up or shut up.

Lots of times you can't retrench gracefully, or save face as the Orientals put it, cause your rear end is so vulnerable. If you renege, you'll get something akin to a shot in the head already.

When you can't duck gracefully, you've passed the point of no return. If you know what you're doing, you can pass this point safely. If not, you'll suffer in the pocketbook, lose your freedom, self respect, security, the love of others, or maybe your life.

Typical points of no return are:

- Saying "I do."
- Signing on the dotted line.
- Passing on a curve.
- Promising the spouse a fur piece.
- Working without instruction.
- Insulting a bigger guy.
- Seeing a cop while running a light.
- Forgetting a butt in a No Smoking zone.
- 3, 2, 1, zero, blast off!
- Acting without thinking.
- D. O. A. (Dead on Arrival)

No one's trying to tell you what to think, Mac. Just make Safety First your thinking man's filter.

ROBERT D. GIDEL

Alcoholism strikes 4,712,000 Americans.

One out of every 13 men of age 20 and older is an alcoholic.

Three out of four alcoholics are between 35 and 55 years of age.

At least 1,650,000 problem drinkers are in industry.

Alcoholics lose a total of more than 36,000,000 working days each year.

Annual loss in wages alone due to excess drinking is \$432,000,000.

Alcohol cost to society in one year—more than a billion dollars.

Firestone's Program

In 1955 Firestone decided to recognize the problem drinker as a sick person, and a policy was developed to try to help these people rehabilitate themselves. As now constituted, the policy calls for early recognition and handling of the problem.

I. Attention is directed to an employee's excessive drinking by these signs:

1. He starts missing a lot of time from work. In checking his absences, the investigator from the company finds the worker is drinking excessively.

2. Supervision notes a distinct change in the employee's behavior. His attitude may become antisocial. He may have repeated accidents on and off the job. Absenteeism increases.

3. The guard at the plant gate notices the worker is under the influence of liquor and refuses him admission.

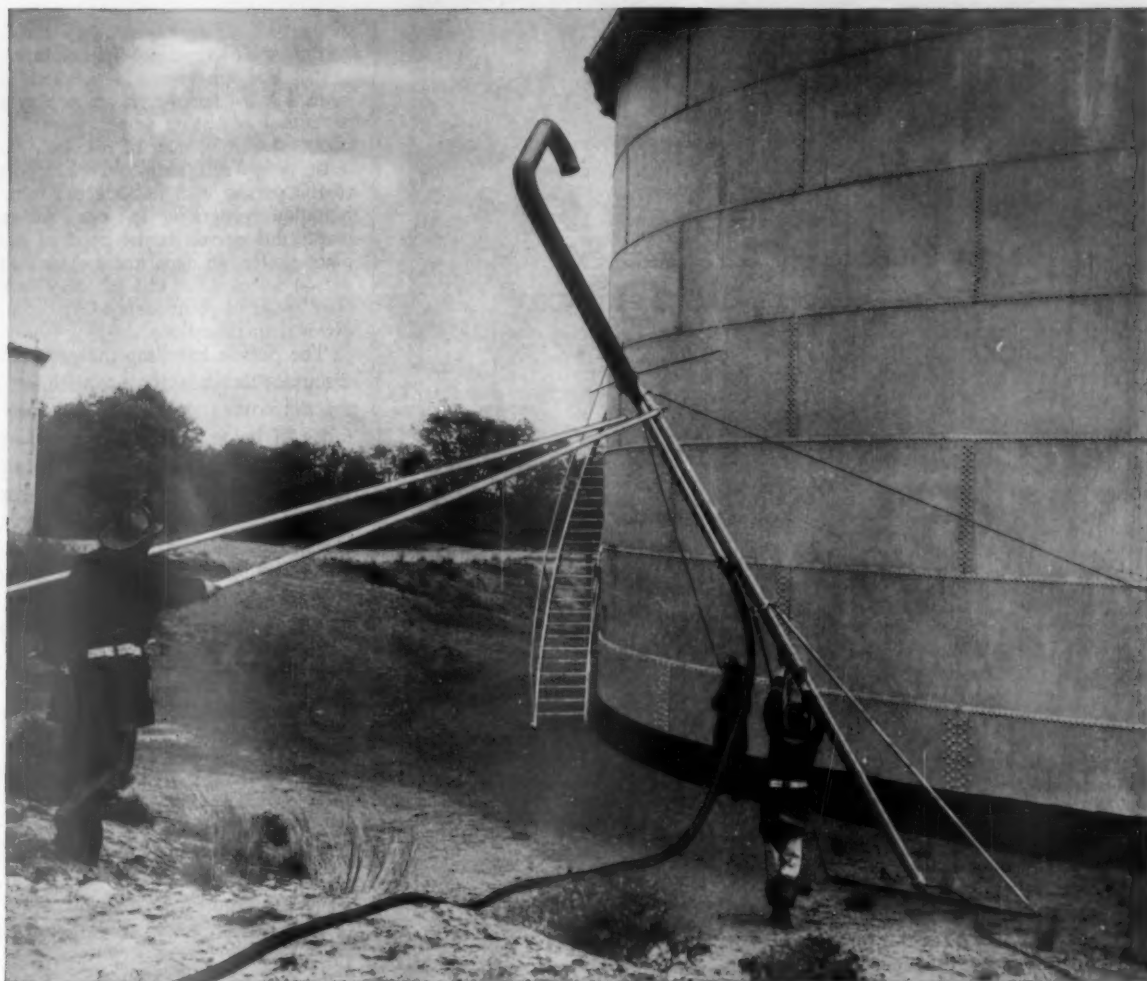
4. The employee comes to or is taken to the plant hospital after starting his shift and is found to be under the influence of alcohol.

5. He reports for work under the influence and is sent home by his foreman or supervisor.

II. Action taken when employee has been found to be drinking excessively:

1. FIRST STEP:

(a) For employees designated in items I-1 and I-2, when attendance is poor, his supervisor will take disciplinary action in line with that taken in any case of excessive absenteeism. If the supervisor is reasonably sure



Rockwood Sure Shot Portable Telescopic FOAM Towers put you in a position to put out tank fires fast!

Lightweight! The tower columns, braces, and gin poles are made of lightweight, high strength aluminum alloys. Even the largest of the 4 towers (67') can be carried, fully assembled, to the erecting position by only 3 men. A crew of 5 can erect a tower and place a FOAM head in position in 5 minutes.

Hydraulically Operated! The FOAM tower column consists of a telescoping hydraulic ram that is elevated by water pressure. For extreme cold weather operation, a hydraulic kit is available that permits raising the tower by means of carbon dioxide or nitrogen pressure.

One Tower Places as Many as 4 Outlets! One tower puts several FOAM discharge outlets into position — making the Rockwood tower the equivalent of many conventional foam towers! A crew of 5 men can erect and install 4 FOAM heads in 17 minutes. And one tower can be used to place chemical foam outlets as well as mechanical foam types!

Minimum Care and Storage! The

tower sections consist of three or four section hydraulic rams made of rust-proof aluminum. The lower tube has a heavy wall section to prevent physical damage. Towers retract to 20 ft. or less for ease in carrying on a fire truck or trailer.

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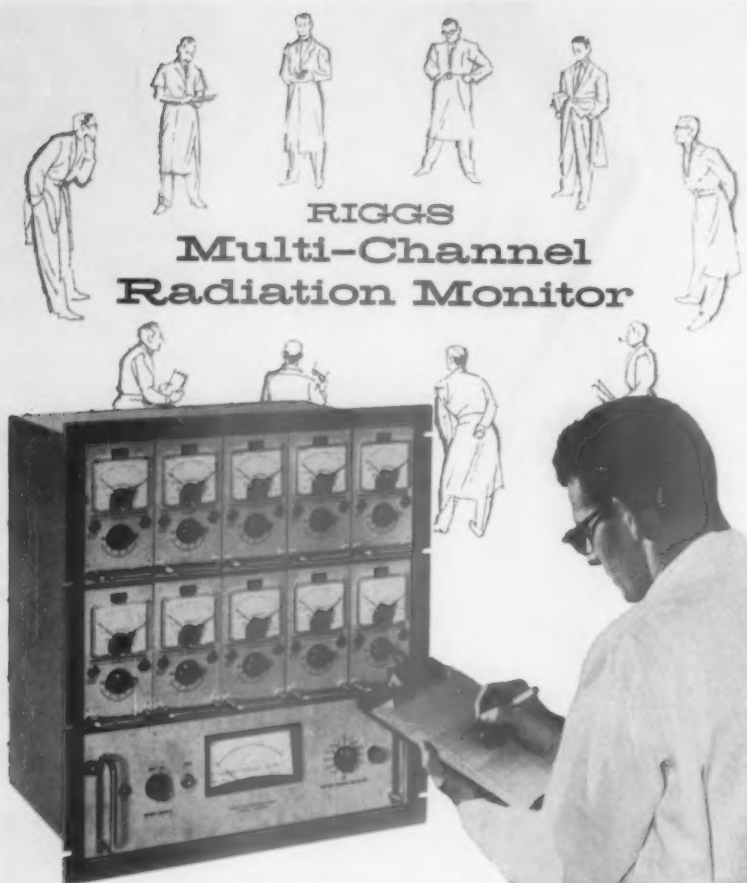
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Write for literature and state the nature of your detection requirement so that we may promptly send you proper information, at no obligation, of course.

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excessive drinking is a primary cause, he may wish to counsel the employee.

(b) For employees designated in items I-3, I-4 and I-5, if an employee is refused admission or sent home, as under the influence of alcohol, he must, before returning to work, report to the person who handles the rehabilitation program. In our Akron plants this person is the head of the plant protection department. The staff person selected for this job may vary from plant to plant, depending on individual qualifications.

The person handling the program discusses the drinking problem with the employee, stressing the importance of being on the job in a safe condition every day, and the danger to himself and others of being under the influence of alcohol on the job. He also points out that time lost, when refused admission or sent home, counts as a suspension. Finally, the employee is warned that, if he does not straighten himself out, more drastic action will be taken.

In reporting the condition of the employee stopped at the gate or checked in at the plant, the term "under the influence of alcohol" is used rather than "drunk" or "intoxicated." This is a rather technical point, but it is often important, since the condition of being drunk or intoxicated may be difficult to prove.

The discussion with the employee is written up and copies go to the industrial relations department, the insurance department, and the plant manager.

2. SECOND STEP:

If the employee continues to drink excessively to the point that his work and attendance are affected, he is instructed to report to the company person designated for an interview before returning to work. At this time, the action taken depends on the employee's attitude, his sincerity in trying to correct his problem, his willingness to cooperate, his service record with the company, and the period since his last difficulty.

The industrial relations department is contacted and agreement reached on disciplinary action. The employee may be suspended for three days, unless the time lapse

since the previous interview is substantial and his subsequent record has been good. In such a case he may get off with a warning.

At the time of this interview, the management representative offers to get a representative of Alcoholics Anonymous to help the individual correct his habits, if he admits he is an alcoholic and wants help. Management also offers help through counseling.

The employee is warned that, unless he corrects his difficulty, he can expect more drastic action next time.

3. THIRD STEP:

If it is necessary to call the employee in again, he is suspended for seven days. At this time, the president of the local union is notified the employee is on the critical list, and that further use of alcohol affecting his work or attendance will be cause for discharge.

Again the employee is offered help through A.A., or he may elect to handle his problem by himself. If he chooses the A.A. program, he is instructed to report to the management representative with his sponsor after he completes the treatment. If he prefers to handle the problem himself, he must also report at the end of the seven-day suspension period.

In either case, before returning to work he is told by the management representative in the presence of the industrial relations department representative and his sponsor, if he has gone through the A.A. program:

(a) He must report off under the regular reporting-off procedure any time he is to be absent.

(b) He is not expected to work when ill, but all illnesses must be supported by a doctor's statement, showing dates he is unable to work, dates treated, and cause of illness.

(c) All absences will be investigated by a company representative.

(d) Any violations of requirements (a) and (b) will be cause for discharge, as will failure to follow through in correcting his drinking habit.

As in the case of all interviews, a written record is made and copies



• Increase Worker Morale

• Reduce Production Costs

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Scott Demand Respirators!

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Men who work in atmospheres not immediately dangerous to life, but in which the ill effects are temporary, are completely protected when provided with Scott Demand Respirators. Breathing worries are gone. They work more comfortably and thus produce more.

Scott Demand Respirators provide gentle refreshing air on inhalation only. There is no wasteful, uncomfortable, constant flow to irritate eyes and nasal passages. Wearers say "As comfortable for 8 hours as for 8 minutes."

All models can be connected to plant air supply or high pressure air cylinder systems. Available with half and full-face mask. Write for complete information or call your nearest Scott Distributor.





Fixed Air supply installation, using high pressure air cylinder. Illustration shows Scottoramic Full-Face Mask.



Fixed Air supply installation using plant air supply. Illustrated with Half Mask, for use where face and eye protection are not required.



Portable Demand Respirator Equipment. For use with plant air supply or high pressure air cylinder systems.



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sent to persons in the company concerned with the case.

Many large corporations have adopted new attitudes toward the problem drinker and set up programs through their medical or industrial relations departments to handle rehabilitation through consultation clinics, community service committees, or Alcoholics Anonymous.

Diary

—From page 17

by Jones Corner to make a turn and go back, Sue went by. The trooper started after her, but a farmer's truck got between us and her, and the unbroken line of west-bound traffic kept us from getting around him and catching up with her.

Mill Creek forms a good-sized valley two miles west of the project gates, and we started down the west slope just as Sue crossed the bridge and started up the east slope. Suddenly, at the top of that slope,

two cars appeared, abreast of each other, bearing down on Sue.

The trooper tells me I yelled at her to watch out (though she was a good 500 yards away.) In a nightmare of fear, I watched the blue family car swing sharply for the shoulder, while the car coming down her lane skidded on dry pavement as the driver locked his brakes.

Sue hit the gravel of the shoulder. The car slewed further to the right and disappeared over the bank. The trooper's siren screamed; the farmer pulled out of our way; and in seconds we stopped at the scene of the accident.

Sue was still at the wheel, and the car was upright, the front wheels deep in the soft mud. There was a welt across her cheek where she had hit the steering wheel, and she was white and trembling, but she wasn't hurt.

* * *

Maybe I'm over-reacting. Maybe I shouldn't let the impact of such an intensely personal experience influence my policy. But I can't help remembering that I had plenty of

warning, that I procrastinated about reacting to the warning, and that I pretty nearly killed my wife through my negligence.

At any rate, we are going to have the darndest emphasis on safe driving on the project this week that anybody ever saw. I'm going to tell the story of that accident and the perils of blind passing to every foreman's meeting on the project. I'm having a map of the highway outside the gate blown up to poster size, with all no-passing zones marked.

And I've got a fine photo (taken by an enterprising amateur cameraman who happened by) showing Sue looking scared, me looking more scared, and the other driver looking petrified, while the trooper stands looking as solemn as Moses on the mountain with his hand on the culprit's shoulder. Copies of that map and photo are going up tomorrow on every bulletin board in the plant.

You call the driver of an automobile a motorist—until he beats you to a parking space.



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HOW FOUNDRY SAVES \$90 PER MAN WITH

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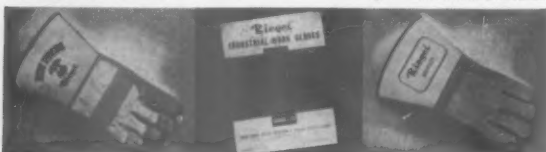
The men prefer Riegel's added roominess and the thick, wool-content lining that gives better heat protection and longer wear. Riegel's wing thumb adds flexibility.

Riegel offers you over 400 different styles and materials...expert advice by industrial specialists...8 warehouses to speed deliveries. Write today.

Hot Press Gauntlet: leather index finger, lips and strap.

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Circle Item No. 20—Reader Service Card



Who's wasting Skin Cleanser?

Everybody does! Dispensers, that do not have adjustable cleanser feed, waste powdered, granulated, cream and paste skin cleansers every hour of the work day. Workers get more skin cleanser than they need and promptly wash the excess down the drain. **THIS WASTE COSTS MONEY!**

With PAX Completely Adjustable DISPENSING EQUIPMENT skin cleanser wastes are eliminated. Dispensing equipment in every section of your plant is easily and quickly adjusted, either by your own maintenance men or by PAX-trained experts to give "just right" servings of skin cleanser for the soil encountered. Workers get satisfactory wash-ups every time but waste is reduced to the vanishing point.

Many hundreds of thousands of PAX Dispensers are serving in industry today . . . many of these have been in use for several decades! PAX DISPENSERS are RUGGEDLY CONSTRUCTED for years of smooth, dependable, trouble-free, clog-proof service.

Your PAX REPRESENTATIVE will be glad to demonstrate the many plus features of PAX DISPENSERS and how they can save money in your plant. Write today!



PAX F-2H

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with the money saving adjustable cleanser feed.

Handsome, rugged dependability! Smaller in capacity than the PAX C-P but just the right size for many industrial and office washrooms. Their heavy gauge steel construction and simple washrooms. Their heavy gauge steel construction and simple non-clog mechanism has made them a favorite for many years. The PAX 2-H for two hand operation has all of these features.

features: easily filled, top locked with key . . . tamperproof, Ob-ser-vision window, non-sifting . . . keeps washbasins neat, completely adjustable soap feed, easily mounted on any type of wall as well as pipes, wash-fountains and wash bowls. Rust-proofed, heavy chrome plate or baked enamel finish. Also available in the (1-H) one hand operation model having all of the above features.

It costs money to be without MODERN PAX DISPENSERS!

For the finest in Skin Cleansers use PAX-LANO-SAV Granulated Skin Cleanser (Heavy Duty) or PAX WATERLESS Pharmaceutical Grade or PAX-SOLV or SUPER PAX-SOLV Waterless Skin Cleaner.



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MANUFACTURING CHEMISTS

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Circle Item No. 21—Reader Service Card

National Safety News, April, 1959

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the
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DISPENSER

with the money saving adjustable
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PAX

59-D

59

A New Look at Sore Backs

With such a complicated structure as the spine, classifying all back cases as strains may overlook the real causes

PERSONAL EXPERIENCE of some 30 years in industrial medical work has convinced me that if all the sore backs actually due to lifting were eliminated, the picture would be changed very little.

I have no sure-shot answer for the sore back problem in industry, at least not on a short range basis. People do have sore backs frequently. I do feel that something might be done over a long period, especially in teaching the public that: there are many causes of sore backs and that the back is a very complex structure subject to numerous sore spots.

If the public realized this, I believe there would be some tendency to get away from the idea that all or most sore backs are the result of strains. It will be a long and difficult process of education.

Because of the complexity of the spinal structure, and the multitude of possibilities for a sore back in this complex structure, the problem will always be with us. We might as well start learning to live with it. Perhaps if we can better visualize the multitude of possibilities, and if we start explaining some of them to the public, they, in time, will come to learn that there are a number of causes of a sore back other than strain.

With this in mind, we will take a look at the back, the man who has it, his mental makeup, and the present state of mind on the sore back.

I feel that one reason the sore back is a problem is because it is so intangible. There is no laceration, no swelling, no dislocations. There is nothing to see, but the man insists that his back hurts and he

cannot work. In many cases, the alleged cause was some trivial incident, the claimed results of which do not look logical.

I think we would all be wise to quit talking about sore backs as strains. You know it is a common practice among doctors, laymen, and attorneys to refer to almost any discomfort in the low back as a strain.

From experience in looking over medical reports, I know it is almost routine to diagnose most sore backs as a lumbo-sacral strain, or a sacroiliac strain, a back strain, or some other kind of strain, especially, if it has anything to do with the lower back.

To the individual, the word "strain" implies that he must have injured himself. Should he have the same amount of trouble in his neck, which, after all, is only the upper end of the spine, they seldom think of it as a strain. It is a kink in the neck, or a cold; they slept in an awkward position, or got in a draft.

The result is that in the thinking of the average patient, most sore backs are the result of injury, real or fancied.

A Multitude of Causes

The purpose of this article will be to try to demonstrate the multitude of possibilities that people have for a sore back, other than that from an injury. We hope to help you appreciate the fact that people can, and do have sore backs, and with the present belief, they honestly feel that they are strains. They are not, in most cases, malingering or looking for money when they make a claim of a strained back.

Knowing this, I feel that most personnel men, insurance men, and safety men will not be so skeptical when an employee reports that he has a sore back and in the process of reporting, he relates a story of a real or fancied injury. He is only reacting in the light of his belief as

to the cause of his sore back. It is only natural for the human to look for some tangible cause for his trouble.

We should help the individual to realize the multitude of possibilities that are present in a complex structure like the back and spine for something to cause trouble. This teaching should be done prior to the time the individual develops the sore back, especially to groups.

I believe that supervisory personnel, safety men and people in the personnel department should be the first ones to be taught to quit thinking and talking of the sore back in terms of strain alone. Knowing this, they will be less inclined to antagonize the individual by accusing him of goldbricking and possibly causing a minor condition to be built up into a major claim.

Causes of sore backs, other than trauma, include:

1. Posture
2. Disease of muscles
3. Disease of nerves
4. Mental conditions
5. Disease of female organs
6. Improper nutrition
7. Infections—local and general
8. Occupational
9. Athletics
10. Age
11. Inherited tendencies
12. Tumors
13. Diseases of kidneys or bladder
14. Diseases of gastro-intestinal tract

After visualizing the complexity of the back with its ligaments, bones, muscles, nerves and joints, it is easy to understand that sore backs can be very frequent from causes other than injury. An inflammatory reaction in any of the structures of the back, a ligament or small muscle, insertion of the muscle, or any other part of the structure, will set up muscle spasm and stiffness and cause discomfort out of all proportion to the severity of the actual pathology present.

—To page 62

By **PAUL W. RUSH, M.D.**

Medical Director, Corn Products Refining Company, Summit, Ill.
Before the Food Section, Forty-sixth National Safety Congress, October 21, 1958.

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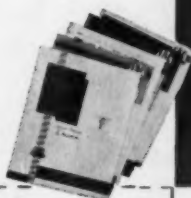
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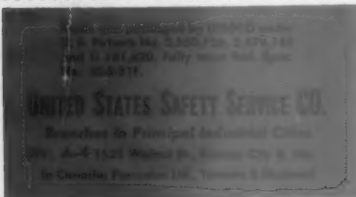
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Any one of these structures in the back may be involved in some inflammatory process and go completely unnoticed until such time as the individual exceeds a certain range of motion in the back, at which time the inflamed area becomes irritated and triggers off a painful response. Under these conditions the individual is inclined to feel that the motion made was the cause of his trouble, rather than an existing condition just brought to light.

Architecturally, the back is a poor structure for the job it is doing. It was designed by nature to function in a horizontal position instead of vertical. It is also a compromise between being a mobile organ and one with stability. It is made up of a multitude of bones, joints, ligaments, muscles, nerves, and synovial membranes, any one of which can become inflamed and give discomfort and muscle spasm.

What can we do about it? Sore backs, regardless of cause, are expensive. They fall into three groups:

1. A true injury which is referred to the orthopedic surgeon or taken care of by oneself and is no particular worry.
2. The vast majority of sore backs which are from causes other than injury, but erroneously attributed to an injury. In this group, anything that can be done to bring about a cure will at the same time remove the problem.
3. A few cases where an individual sets out deliberately to fake a claim and get a settlement.

With real injuries, one should be careful not to antagonize the individual by an attitude of doubting him and develop a state of resentment which may influence him to make a difficult case out of something that shouldn't have amounted to much.

Next, we can get an accurate, detailed account of what the employee did, or thought he did, at the time he first noticed his sore back. Get this information at the first interview, write it down and let the employee know that you have it. If possible, get the story of witnesses and supervisors immediately. This stops some next-day fabrications.

Early x-rays often relieve the patient's mind and may show some arthritis or some other anomaly which may be pointed out to him

as a probable cause of his sore back and frequently will be accepted as such.

Next, inquire as to whether he has had any symptoms of a similar occurrence before, or if he has had a recent upper respiratory infection or sore throat. Sore muscles in the back frequently follow mild infectious conditions.

We can educate foremen, supervisors, personnel, safety and medical department employees to appreciate that sore backs are frequent, more commonly from natural causes, but usually blamed on strains. Have them learn to talk and think from this viewpoint when dealing with employees with sore backs. This will avoid antagonizing and may save a controversy.

We can carry on a program of education among the well employees as to the many causes of sore backs.

We can place employees with known vulnerable backs, curvatures, arthritis, congenital defects and such like on jobs where there is little use of the back and where they will have little or no excuse to blame their work for any sore back.

We can teach employees to do their lifting with a gradual application of effort and not try to snatch or throw their weight against whatever they are trying to move.

We can carry on an active educational program on an adequate and healthful diet to improve physical fitness and nutrition. Counseling, posters, leaflets, pick-up literature, etc., help. This will also pay dividends in other areas such as heart and blood vessel disease, arthritis, etc.

Dates for New York Safety Conferences

The following dates have been established for the greater New York Safety Council's Annual Safety Convention and Exposition through 1965:

- April 13-17, 1959
- March 27-April 1, 1960
- April 10-14, 1961
- April 9-13, 1962
- April 1-5, 1963
- April 6-10, 1964
- April 5-9, 1965

Offices of the Greater New York Safety Council are at 60 East 42nd Street, New York 17.



INCREASING ACCEPTANCE OF MOUTH-TO-MOUTH RESCUE BREATHING STRENGTHENS THE CASE FOR INTERMITTENT POSITIVE PRESSURE



Let's face a generally acknowledged fact: mouth-to-mouth rescue breathing is meeting with increasing acceptance as the standard for suitable emergency resuscitation of victims of breathing failures.

The Red Cross, as well as many governmental and civic agencies, accepts this widely recognized intermittent positive pressure rescue breathing method.

There is an impressive history of arrested breathing victims who owe their lives to this dependable principle. It has proved to be effective time and time again. The evidence is irrefutable, we honestly do believe.

So doesn't it seem logical that this popular concept of mouth-to-mouth rescue breathing should be continued with a mechanical resuscitator using the same principle: intermittent positive pressure.

Once again, we honestly do believe it does.

As a result of this long stated conviction of ours, we manufacture the M-S-A PNEOLATOR®. This simple resuscitator administers automatic artificial respiration in much the same manner employed in mouth-to-mouth rescue: intermittent positive pressure.

The Pneolator inflates the lungs of the unconscious victim with life-sustaining oxygen, in the right amount, and at the right pressure for the individual's own requirements. With the Pneolator, you can quickly determine if the air passages are blocked.

Exhalation is automatic. It takes place by the normal passive return of the respiratory muscles and lungs. The M-S-A Pneolator automatically converts to an "inhalator" type apparatus as soon as the patient resumes breathing.

May we conclude on a note of caution? The first few minutes after breathing has ceased are the most critical. Artificial respiration should be started at once and continued until the Pneolator is put in use.

Please don't hesitate to get in touch with us for helpful literature, answers to specific questions, and an authoritative demonstration of the M-S-A Pneolator. Write: Mine Safety Appliances Company, Pittsburgh 8, Pennsylvania. In Canada: Mine Safety Appliances Co. of Canada, Ltd., Toronto 4, Ontario.

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Worried About

High Blood Pressure?

You can live with it for a long time,
but don't ignore the doctor's orders

THE AVERAGE WORKER, told by his physician or the company clinic that his blood pressure has been climbing gradually during the years, is apt to be impressed at the time but only too soon forgets advice given to him.

It has been medically proved that 65 to 70 per cent of high blood pressure cases go on to heart failure or heart disease of a serious magnitude. The overloaded pipe system of the body has to give way somewhere. Unless the pipe breaks (cerebral hemorrhage), the pump bears the brunt of continuous pressure and gives way by changes in the major heart muscle.

The various life-regulating glands of the body—the thyroid, thymus, pituitary—are dependent on each other to a certain degree. Secretions or physiological actions are directly affected, resulting in lowered efficiency or disease.

In much the same way, the continued effect of high blood pressure leads to lowered kidney function. An accumulation of scale (such as in pipes and boilers) by salt retention takes place, which irritates and aggravates a congestive heart breakdown.

At this stage in chronic hypertension, there are direct, startling, severe signs of acute heart failure from the slumbering volcano effect of 5 to 10 years of high blood pressure.

An equal number of such cases

have a slower effect, with increasing inefficiency of heart action—medically termed *coronary* (blood supply of the heart) *insufficiency* or *silent infarction* (loss of blood supply to a certain portion of the heart muscle.)

Often, the result of years of clinical delusory freedom from the effects of high blood pressure is abruptly brought to the surface by a severe cold or grippe, a major accident in the shop, the emotional burden of an executive, a great dietary error, or an unusual physical strain.

Pre-placement and annual physical examinations can help delay or offset the explosion of the individual physical safety valve. Harmonious working conditions—including superiors who give recognition when it is due—reduce the strain on the individual, too.

Medical Supervision

The worker who knows he has high blood pressure should be guided by his physician as to proper medication and sound counseling. If followed, this advice can do much to prevent the first anginal attack brought on by physical and emotional forces, the gall bladder or ulcer attack, thyroid disturbance, or tachycardia (increased heart beat) that ushers in the severe coronary heart attack.

Some investigators believe that this heart muscle involvement and acute coronary attacks are frequently caused when certain electrical impulses are set up, which send the heart into severe ventricular fibrillation, resulting in an electrocution of the heart and instant death. Dr.

Claude S. Beck's article, "Some New Concepts of Coronary Heart Disease," *Journal of the American Medical Association*, Dec. 20, 1958, discusses this theory in detail.

Unfortunately, this is not just speculation. All physicians have had the unpleasant experience of pronouncing a worker dead from coronary heart disease produced suddenly by an acute gall bladder or "ulcer" attack.

As safety programs have proved effective in lowering accident hazards, all hypertensive workers should set up and follow their own safety heart and blood pressure program after being told there is a definite indication of hypertension or early hypertensive heart disease.

Such patients should carefully maintain a recommended dietary regime, keep within a certain weight bracket, carefully observe designated rest periods and attempt to keep a normal emotional balance. Severe cold weather or humid heat changes should force the worker with high blood pressure to reduce extreme exertion or physical activity.

The average coronary and high blood pressure candidate usually becomes such by his blustering extroverted makeup. This same urge of activity reflects itself in an ostich-like philosophy: "This can happen to Joe, but not to me!" And on he goes, defying the laws of common sense and health.

There are a few rugged individuals who seem to defy statistical predictions and who burn the candles successfully at both ends, but these persons are exceptional. For most of us, these candles serve to light the dim religious shade of the neighborhood funeral parlor.

Not a nice thought to leave, but neither is the breathlessness of a heart failure, the slow gait of a leg-swollen kidney-heart-failure case, or the severe, frightening lightning clutch of an anginal attack.

And, if these comments have a moral, it is: Set up and follow your own physical safety program under the guidance of your physician.

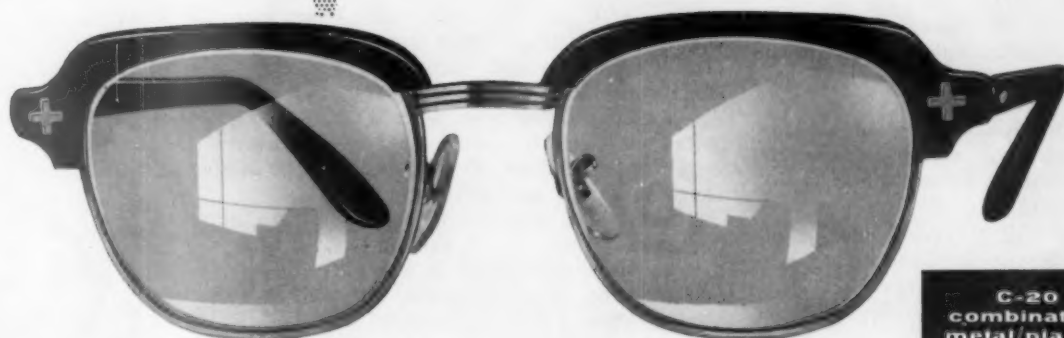
By N. GILLMOR LONG, M.D.

Medical Director, Lumbermen's Mutual Casualty Company, Chicago; Member, Medical Advisory Committee, National Safety Council.



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Council Modifies Staff Organization

Changes in National Safety Council staff designed to promote more efficient liaison with conference officers, to facilitate interoffice operations and to improve capacity for future planning have been announced by Gen. George C. Stewart, Council executive vice-president.

The new structure relieves General Manager William G. Johnson of responsibilities concerned with the general administration of the Council so that he may devote full time to accident prevention programs. All program departments are placed under his direction.

Under the general manager, program departments have been arranged in four sub-groups, and one additional assistant general manager and one additional manager have been provided to head these groups.

To fill the vacancies created by the new organization, the following appointments and changes in assignment were made:

Henry Hoeffler, assistant general manager, will supervise Research and Statistics, Industrial and Motor Transport.

Paul Hill, previously manager of Field Service Department, was appointed general manager supervising Home, School and College, Traffic and Public.

George Harris, special field representative, was promoted to manager of Field Service Department.

Marvin Nicol, formerly of the Farm Division, was appointed manager of Civic Leadership Services.

The modifications in organization provide for greater use of the staff as a channel of communication between and among NSC conferences. The change should also make for



G. W. Harris



M. Nicol

better coordination and mutual support of programs by all conferences and the entire staff. Within Council headquarters, delays in staff work resulting from a large number of departments reporting to one individual will be eliminated.

Sports Publication Honors E. C. Myers

EDWARD C. MYERS, vice-president for personnel of United States Steel Corporation and vice-president for membership of the National Safety Council, has been selected as one of *Sports Illustrated* magazine's "1933-58 Men of Achievement" in career accomplishment.

This award is presented annually to "college seniors of 25 autumns ago who won their letters in football and who, in the judgment of their colleges and of a board of their fellow citizens, have most signally distinguished themselves in American professional, business, and community life in the generation since 1933."

At Bucknell University, Lewisburg, Pa., Mr. Myers starred as a triple-threat halfback, and was senior class president and an honor student. He was graduated in 1934 with an A.B. degree, specializing in personnel management.

He began his business career that year as an observer in the Homestead plant of Carnegie Steel Company, now United States Steel Corporation. As a trainee, Mr. Myers coached an amateur football team.

Also, he served in the company's Safety, Employment and Industrial Engineering Department and in 1936 was appointed plant director of personnel, welfare and training.

In 1938 he became a staff assistant in the Public Relations Department, United States Steel Corporation of Delaware. From 1940-42 he worked in this position, also serving as coordinator in the Law, Industrial and Public Relations Departments.

From 1942-43 he was assistant director of public relations, and in 1943 he transferred to the Industrial Relations Department as assistant to the vice-president. In 1949 he attended the Advanced Management Program of Harvard University.

After the formation of the United States Steel Company in 1951, Mr. Myers remained in his previous position until 1953, when he was appointed Assistant Vice-President—Industrial Relations. In 1958 he was elected Vice-President—Personnel of the firm.

He is a member of the NSC Board of Directors, as well as the Council's Vice-President for Membership. He is a member of the President's Committee on Employment of the Physically Handicapped; the Foreign Relations Committee of the American Iron and Steel Institute; the NAM Advisory Committee on Salaried Personnel; and the Board of Directors of the Pittsburgh Personnel Association.



E. C. Myers—As star halfback for Bucknell (right) and today as vice-president for industrial relations, U. S. Steel.



H. J. Hoeffler



P. F. Hill



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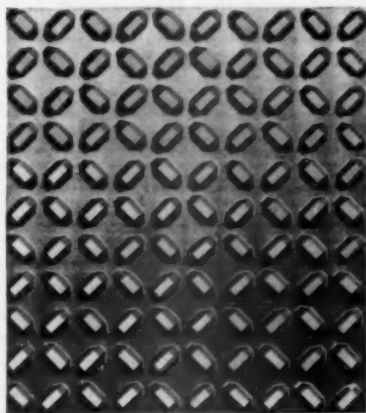


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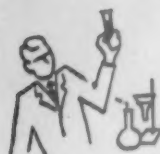
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INDUSTRIAL HEALTH



Abstracts of current literature on Occupational Hygiene, Medicine, and Nursing

By E. L. ALPAUGH, Industrial Hygienist, NSC

Labeling Rules for Toxic Substances

"Labeling Requirements for Toxic Substances, The Governmental Industrial Hygienists' Viewpoint." Hervey B. Elkins, Ph.D. *The American Medical Association Archives of Industrial Health*. December 1958, pp. 451-456.

PRECAUTIONARY labeling is becoming increasingly important. The Manufacturing Chemists' Association has published a manual on labeling. In 1957 the Committee on Standard Labeling Procedures of the American Conference of Governmental Industrial Hygienists also prepared a guide to rules and regulations for labeling hazardous substances.

Dr. Elkins discusses the history of precautionary labeling of industrial chemicals. He comments on the precautionary labeling system proposed by the Manufacturing Chemists' Association in view of the position taken by the American Conference of Governmental Industrial Hygienists.

The author agrees the MCA manual is excellent but says it tends to emphasize accident aspects rather than health hazards. He says an MCA definition of *poison* specifies a substance which, given in certain dosages, will cause the death of humans or animals in 48 hours. He says none of the compounds recognized primarily as industrial poisons by the U.S. Public Health Service many years ago would qualify as a poison under this definition.

The ACGIH thinks the word *poison* or *poisonous* should appear on labels for substances with serious chronic effects, such as benzene and carbon disulfide, even though the acute toxicity of these chemicals is not great.

The MCA manual regulations place emphasis on pure substances, usually mentioning mixtures only in

passing. Dr. Elkins estimates that 75 per cent of products requiring warning labels are mixtures. He says any system applicable to only 25 per cent of the cases is inadequate.

The guide prepared by ACGIH proposes the scheme for classifications of mixtures containing toxic substances, where the hazards of such mixtures have not been directly evaluated. It is proposed that the presence of poisons in mixtures except in small amounts shall be indicated on the label.

Below certain percentages, a milder signal word (*warning* instead of *danger*) may be used. In mixtures containing less than certain designated percentages, *caution* may be used but the presence of harmful substances must still be stated.

Exceptions may be granted, if other components of the mixture sufficiently reduce the hazard. Critics of this scheme argue that each mixture must be considered on the basis of its own property, with the implication that these cannot ordinarily be predicted from its composition.

Where the hazard from a toxic component of a mixture is reduced by dilution with inert or non-toxic ingredients, it is necessary for labeling purposes to set a percentage figure below which the poison label need not be used.

For example, the scheme suggested by the ACGIH suggests a 20 per cent benzene content as the limit between high and low benzene hazard, and a 5 per cent benzene content as the point below which the presence of benzene need not be indicated.

Similar limits of 20 per cent and 5 per cent for other poisonous solvents, such as carbon tetrachloride, carbon disulfide, and tetrachloroethene are suggested. For more

toxic poisons, limits of 10 per cent and 1 per cent are suggested, with the provision that some especially toxic substances should be named in amounts even less than 1 per cent.

The three most important deviations of the ACGIH plan from that offered by the Manufacturing Chemists' Association are:

1. Change in definition of *poison* to include slow-acting substances and to eliminate inconsistencies between definition and specific recommendations.

2. Specification of requirements for labeling of mixtures containing toxic substances, based on composition of mixture when other data are lacking.

3. Placing of authority to determine adequacy of labeling in the government agency, rather than leaving it to the individual manufacturer or employer.

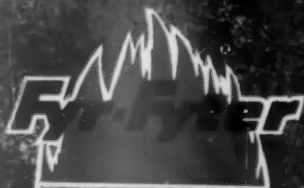
Thallium Intoxication

"Industrial Thallium Intoxication." Edna M. Richeson, M.N., M.S. *Industrial Medicine and Surgery*. December 1958, pp. 607-619.

A BRIEF HISTORY of industrial thallium intoxication introduces the case history of a plant engaged in separation of industrial diamonds from abrasives. The process involved was confined to a small room and required reconcentration of organic thallium salts in a distillation system. In this plant 15 men had worked with varying concentrations of solutions of these salts for 7½ years.

Complaints noted were abdominal pain, fatigue, weight loss, pain in the legs, and nervous irritability. Early cases of chronic poisoning were found difficult to diagnose because subjective symptoms were not necessarily accompanied by clinical signs or positive laboratory findings. It was not possible to establish a

—To page 75



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Circle Item No. 28—Reader Service Card



TRAINING in the Naval Air Reserve is rigorous and realistic. Here a week-end flyer is strapped into the simulated ejection seat. When he pulls the curtain he will be shot to the tower top which gives the feeling of being ejected from a jet.

Flying Is Safer for "Week-End Warriors"

Persistent campaign in Naval Air Reserve strengthens airpower by reducing accidents to planes and personnel

SAFER week-end flying by the part-time pilots of the Naval Air Reserve Training Command's "Week-end Warrior" program helped establish 1958 as the safest flight year in U.S. Navy history.

Statistics recently released by the Navy's primary air safety activity, the Naval Aviation Safety Center at Norfolk, Va., show that 218 week-end squadrons were completely accident-free during the 12 month period that ended June 30, 1958.

Sharing the safety spotlight with the Reserve Command for the year were the active super carriers, the *USS Forrestal*, *USS Ranger* and the *USS Saratoga*. Figures showed it was twice as safe to operate from the longer flight decks of the super carriers than from smaller decks of the next largest class.

Concentration on air safety by the reserves, the carriers of the fleet and all training commands led the Navy's major accident rate to a new record low of 2.83 accidents per 10,000 flight hours. (A major accident is one in which the aircraft is lost or disabled so badly a major overhaul or repair is needed.)

Translated into dollars, the im-

proved safety rate meant a savings of \$27 million for a year. In terms of lives, it meant the saving of 35 pilots and 45 aircraft. It also meant there was an average delay of 3,280 hours between accidents, 250 more hours than in 1957.

The reduction was accomplished in spite of an expected upturn due to the introduction of six new types of supersonic and transonic aircraft into fleet air squadrons. Usually, new types mean an increase in accidents during the first year of operations.

Carrier flying hit a record low accident average of .9 accidents per 10,000 hours of flying. Contribut-

ing factors include the Mirror Landing System now operating on all carriers to guide pilots on landings; the canted (slanted) deck, which eliminates the hazards of a deck barrier by permitting take-offs when arresting gear fails to stop aircraft; and the 60-ft. longer landing area on decks of super carriers.

All landings were safer in the Navy on land or at sea. A cut of 11 per cent was recorded in accidents occurring during the landing phase, including a decrease of 50 per cent in unintentional wheels-up landings.

A constant downward trend shows the Navy's improved safety



By CMDR PAUL JAYSON, USN
Head, Media Branch,
Naval Air Reserve
Training Command, Glenview, Ill.

A TOTAL of 286 commands throughout the Navy qualified as "Accident Free" in 1958. Personnel of these

squadrons are permitted to wear special insignia on flight gear and automobiles.



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facial contour fit
for extra comfort, extra safety*

new, improved #600A

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Anatomically designed, the MonoMask is the most comfortable respirator you can buy. With its one-piece resilient rubber facepiece featuring tapered, "feather-edge" contact all the way around, it automatically shapes to the face. Assures a positive protective seal and unusual worker comfort. The MonoMask is U. S. Bureau of Mines-approved for protection against dusts, pneumoconiosis-producing mists, and chromic-acid mist. High-quality single filter of treated felt gives extremely long service. Positive-action inlet and outlet valves assure uninterrupted ease of breathing. Standardize on the Willson MonoMask for extra comfort, extra safety.

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*better fit
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longer lasting filter...

lower breathing resistance...

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IN HANDY, DURABLE PLASTIC CASE**

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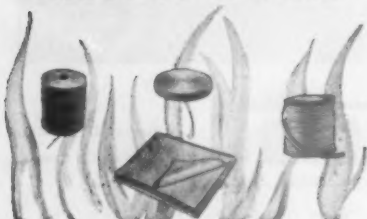


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**Johns-Manville
Asbestos Textiles**



Circle Item No. 30—Reader Service Card

education program has had lasting effects on pilots and crews. Spearheading the air safety program for the Chief of Naval Operations is the Naval Aviation Safety Center at Norfolk, Va., which went into operation for the first time in 1951. The three main functions of the center consist of gathering, evaluating, and disseminating information concerning Navy safety activities.

Part of the mission of the Naval Aviation Safety Center is to determine the needs of the Navy for aviation safety education and to provide suitable material. Educational media, to be of value, must be kept abreast of advances in design, techniques, and requirements. The Safety Center meets these needs through the monthly distribution of *Approach*, a safety review made available to all commands. This publication goes into all phases of the flight safety field, including parachutes, mirror landings, spark plugs, exposure suits, cold weather operations, crash investigations, sonic barriers, and jet ditching.

Weekly and quarterly statistical summaries, special studies and training manuals, the *Aircraft Accident Investigator's Handbook*, aviation safety training films and safety conferences are constantly being used to acquaint aviation personnel with the problems of aviation safety.

And by publicizing unsafe practices, the Navy is stimulating cooperation and positive action throughout its aeronautical organization. As a result, the Navy is reducing the occurrence of avoidable accidents and is advancing the safety of its personnel and material, plus fostering higher morale.

Annually, aviation safety awards are presented by the Chief of Naval Operations as an essential part of the Naval Aviation safety program. These awards are presented to the squadrons and aircraft carriers deserving recognition for having conducted their missions with the highest degree of safety.

This year, for the first time, the safety program included recognition for the squadrons and personnel

who had a completely accident-free year but did not receive the top prize in an award class.

A total of 286 commands throughout the Navy qualified as *Accident Free* in 1958. Personnel of those squadrons will be permitted to wear a special insignia on flight gear and automobiles. All squadron mail will be stamped with the new *accident-free* insignia.

Each squadron was in competition with the past accident record of its type of aircraft. The basic premise is: if all squadrons excel the past year's average, the succeeding year's average would be higher, but the accident rate would be lower.

Each aircraft type was assigned a base number approximately equal to the number of hours between accidents in that model during the previous year. It was an *average* number, and had to be adjusted to make competition between small and large units more equitable.

No points were credited to the squadron's record until it had equalled the all-Navy record of flight hours and carrier landing points for its model. If an accident occurred before the unit reached the accident-free base number, it lost all credits and started over again. Once the base number was passed, the unit amassed credit points until an accident was recorded.

Winning squadrons and carriers were those which acquired the largest number of credit points. Regarding carriers, points were awarded for each landing but were subtracted for various categories of accidents.

Constant improvement in the Naval Air Reserve's safety record is an indication that our nation's "back-up" forces will be better trained, and more ready to fight, when needed.

Psychiatrists say it's not good for a man to keep too much to himself. The Internal Revenue Service says the same thing.

Just praise is a debt and should be paid.—Peter B. Kyne.

Industrial Health

—From page 70

relationship between urinary excretion rates and exposure to these salts. BAL was tried but did not effect prompt relief of symptoms.

A description of the process and exposure is given with detailed case histories of a number of employees. Since all compounds of the metal are toxic by any mode of entry into the body, recommendations for control are suggested:

Worker education should include information on dangers encountered in the use of thallium, proper job procedure, and use of equipment and housekeeping practices to minimize exposure. Employee education should emphasize healthful personal habits and proper use of protective clothing. Engineering controls should consist of segregation and/or enclosure of process, alteration of equipment, building and equipment maintenance, and local and general exhaust ventilation.

Medical controls require all persons to be under medical supervision. No one should work with thallium if he has a history of having albuminuria, high blood pressure, hepatic disease, endocrine gland dysfunction, or mental instability.

Periodic physical examinations should include interval history, urinalysis, blood count, blood pressure, eye examination, and observation of body weight. Frequency of examination should be determined on an individual company basis, depending on the amount of exposure or on the individual employee, if he has developed symptoms.

Protective clothing and equipment should include rubber gloves to prevent skin contact. All protective clothing should be kept in separate locker facilities and not mixed with street clothes.

Work clothing should be washed frequently; gloves should be washed after each wearing; and masks should be cleaned after each wearing. Contaminated clothing should be washed in the company laundry and not taken home. Adequate washing and shower facilities should be provided and their use made a must.

There should be no eating, loafing, smoking, or gum-chewing in

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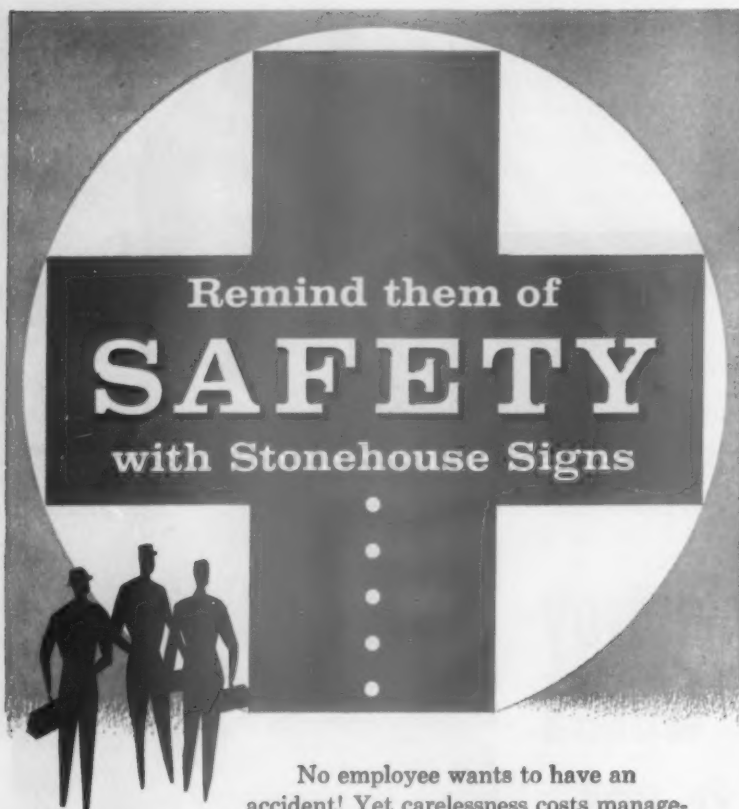
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Circle Item No. 32—Reader Service Card

exposure areas. Hands should be washed before handling food or cigarettes, and showers should be taken at the end of the work day. If a thallium compound spills, copious amounts of water should be used to wash away spilled materials.

Regulations on Radioactive Shipments

"Interpretation of Regulations Governing the Shipment of Radioactive Material." Carl W. Buckland, Jr. *The American Medical Association Archives of Industrial Health*. January 1959, pp. 33-43.

THIS ARTICLE describes methods used by the Los Alamos Scientific Laboratory to interpret the Railway Express Agency and the Interstate Commerce Commission regulations for the shipment of radioactive materials. The interpretations, understandable to the average monitor checking shipments, are relatively simple in application.

Amounts of radioactive material exempt from prescribed packaging and labeling regulations are tabulated in three quantity ranges (0.1, 0.135, and 1.35 millicuries.) These figures are conversions from the allowable disintegration rates.

A formula is given for finding the number of curies of activity per gram of material. Values are listed for the commonest isotopes confronted in general operations.

Recommendations offered for packaging liquids or gases meet with standards set by the Interstate Commerce Commission regulations. Container surface radiation is also discussed. This includes an official guide developed at Los Alamos for neutrons at the surface. No limitation is given in the regulations for this type of radiation.

Simple formulas are available for determining the allowable quantity for each type of radiation emitted from a source of gamma radiation and neutrons. This allows calculation to be made for the level of reduction required for the gamma or the neutrons.

Also discussed are the method of using lead-paraffin containers, which will meet the ICC regulations for shipping neutron sources, and the possibilities of source leakage and methods of labeling.

Constant use will wear out anything—especially friends.

Circle Item No. 33—Reader Service Card →



Pittsburgh Color Dynamics® in new Graflex Plant

World-famous maker of precision cameras uses modern painting system to improve efficiency and safety of workers

Graflex, Inc. of Rochester, New York, has used Pittsburgh COLOR DYNAMICS for many years to improve productive efficiency and safety of its workers. As a result of its highly satisfactory experience, the new building recently completed to house main offices and manufacturing facilities, has been completely painted according to the principles of this modern color system.

● In this new structure, with 225,000 square feet of floor space, this pioneer maker of cameras, now part of the

General Precision Equipment Corporation, continues to produce photographic and electronic equipment of exceptional versatility and reliability for civilian and military use.

● "Our production requires precision and accuracy," comments M. B. Moore, Graflex vice-president and factory manager. "We strive to provide our operators with best possible lighting conditions. Our experience has proved that COLOR DYNAMICS, with its focal and eye-rest colors on walls and ma-

chines, helps them see their work better. Eye strain, nervous tension and physical fatigue are reduced."

● "Safety colors on controls and traffic areas have lessened danger of time-loss accidents. Our workers are proud of their cheerful surroundings. They keep work areas clean and orderly, reducing housekeeping. Long-time experience with COLOR DYNAMICS has shown it to be economical. We enjoy its benefits at no greater cost than conventional maintenance painting."



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● Why not try painting the COLOR DYNAMICS way in your plant? Send for fully-illustrated free booklet which explains how you can improve efficiency, morale and safety of your employees with this modern painting system. Better still,

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Circle Item No. 34—Reader Service Card

National Safety News, April, 1959

COMING EVENTS



in safety and
related fields

April 6-7, Toronto, Canada

Annual Conference of the Industrial Accident Prevention Associations. (Royal York Hotel.) R.G.D. Anderson, general manager, Industrial Accident Prevention Associations, 90 Harbour Street, Toronto 1, Ont.

April 6-10, Cleveland, Ohio

1959 Atom Fair, H. F. Grebe, exhibits manager, International Atomic Exposition, Architects Bldg., Philadelphia 3.

April 7-8, Berkeley-Oakland, Calif.

Seventh Annual Northern California Safety Congress. (Hotel Claremont.) Eastbay Chapter, National Safety Council, 1322 Webster St., Oakland 12, Calif.

April 8-10, Gainesville, Fla.

Sixth Annual Conference on Accident Prevention Engineering. (University of Florida.) Donald B. Wilcox, conference coordinator, University of Florida, Gainesville, Fla.

April 8, 15, 22, New Haven, Conn.

Supervisors Safety Training Course (James Hillhouse High School.) Robert M. Anderson, Anderson Associates, P.O. Box 6054, Hamden 17, Conn.

April 9-10, Kansas City, Mo.

Fourteenth Annual Central States Safety Congress. (Hotel President.) George M. Burns, managing director, Kansas City Safety Council, 419 Dwight Building, Kansas City, Mo.

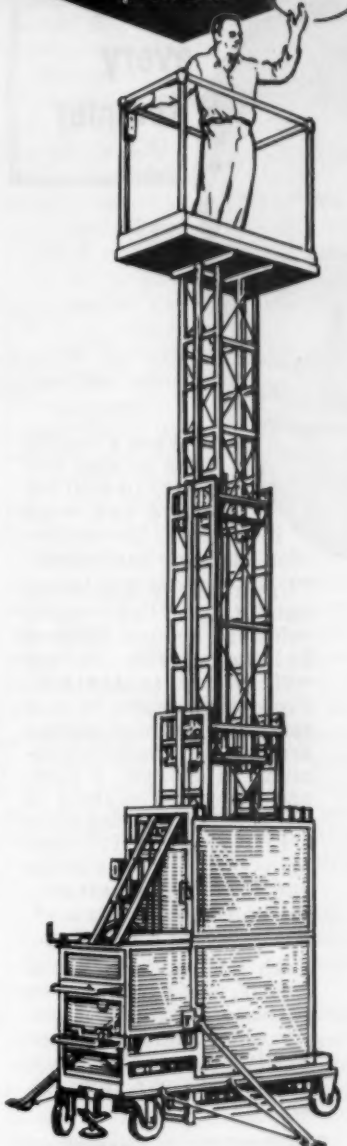
April 13-17, New York

Twenty-ninth Annual Safety Convention and Exposition. (Hotel Statler.) Paul F. Stricker, executive vice president, Greater New York Safety Council, 60 E. 42nd St., New York 17.

April 14-16, Pittsburgh, Pa.

Thirty-fourth Annual Western Pennsylvania Safety Engineering Conference and Exhibit. (Penn Sheraton Hotel.) Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 605 Park Bldg., Pittsburgh, Pa.

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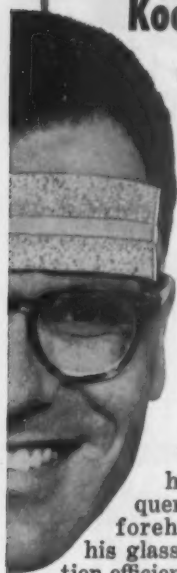
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Circle Item No. 35—Reader Service Card

**Here's why
cost-conscious
plants buy
Koolpads
every
summer**



When a worker has to stop frequently to mop his forehead and wipe his glasses, his production efficiency has to drop.

That's where Koolpads come in. Every lightweight, cellulose sponge Koolpad holds six times its own weight in perspiration! Production delays to mop foreheads and wipe glasses are cut to an absolute minimum. In addition, a Koolpad dampened slightly in water before wearing gives a refreshing "lift" that helps shrug off some of the effects of stifling heat . . . the immediate result is often improved production.

Each Koolpad is packed in a clean, neat envelope as an extra sanitary precaution. Also, every Koolpad has an easily adjustable elastic headband for a comfortable fit.

• Insist on Koolpads, the sweatband with all these features . . . and the sweatband that can be rinsed in seconds and used over and over again.

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LOS ANGELES 46, CALIF.

April 20-22, Syracuse, N. Y.

Sixth Biennial Central New York Safety Conference and Exposition. (Hotel Syracuse.) Newell C. Townsend, administrative secretary, 351 South Warren Street, Syracuse 2.

April 22-23, Indianapolis, Ind.

Twelfth Central Indiana Safety Conference & Exhibit. (Claypool Hotel.) Jack E. Gunnell, director, Safety Council, Indianapolis Chamber of Commerce, 320 N. Meridian St., Indianapolis 11, Ind.

April 23-25, Portland, Ore.

Twenty-fifth Annual Forest Products Safety Conference. (Multnomah Hotel.) Pat Reiten, chairman, Forest Products Safety Conference, 2301 N. Columbia Blvd., Portland, Ore.

April 25-May 1, Chicago

Industrial Health Conference. (Sherman Hotel.) Industrial Medical Association, 28 E. Jackson Blvd., Chicago 4.

April 27-29, East Lansing, Mich.

Sixth National Conference on Campus Safety. (Michigan State University, Kellogg Center.) Norman V. Steere, assistant director, Dept. of Public Safety, MSU, East Lansing, Mich.

April 28-30, Columbus, Ohio

Twenty-ninth All-Ohio Safety Congress and Exhibit. (Deshler-Hilton Hotel.) Arthur W. Moon, congress manager, Room 611, Ohio Departments Building, Columbus 15.

April 29-30, Cleveland, Ohio

Symposium on packaging and transportation of chemical products. Cleveland Engineering and Scientific Center. Manufacturing Chemists' Association, Inc., 1625 Eye St. NW, Washington 6, D. C.

May 4-6, Allentown, Bethlehem, Easton, Pa.

Thirty-second Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 602 E. Third St., Bethlehem, Pa.

May 5-7, Niagara Falls, N. Y.

Nineteenth Western New York Safety Conference. (Hotel Niagara.) Clifford H. Seymour, executive secretary, Western New York Safety Conference, P.O. Box 315, Niagara Falls, N. Y.

May 7-8, Seattle, Wash.

Third Annual Northwest Industrial Safety Conference. (Olympic Hotel.) William A. Feathers, Seattle-King County Safety Council, 304 Spring St., Seattle 4, Wash.

May 7, 21-June 4, 11, Wisconsin

Spring Regional Conferences of Wisconsin Council of Safety, Inc. R. W. Gillette, executive director, Wisconsin Council of Safety, Inc., West Wilson St., Room 234, Madison 2, Wis.

May 10-12, Baton Rouge, La.

Third Annual Industrial Mutual Aid Conference and Exhibit. (Belmont Motor Hotel.) Contact Chief R. A. Bogan, chairman, Baton Rouge Mutual Aid System, Central Fire Station, P. O. Box 96, Baton Rouge, La.

May 12-14, Rochester, N. Y.

Second Triennial Genesee Valley Safety Conference and Exposition. (Manger Hotel.) William H. Keeler, secretary-treasurer, Genesee Valley Safety Conference, Inc., 55 St. Paul St., Rochester 4, N. Y.

May 18-19, Memphis, Tenn.

Ninth Annual Convention of National Water Safety Congress. Herbert E. Hudson, president, National Water Safety Congress, 314 Canterbury Dr., Knoxville, Tenn.

May 19-20, Philadelphia

Executive Committee, Public Utility Section, National Safety Council. (Ben Franklin Hotel.) Paul Windsor, Bureau of Safety, 20 N. Wacker Dr., Chicago 6.

May 21-22, Duluth, Minn.

Thirty-fifth Annual Conference of Lake Superior Mines Safety Council. (Hotel Duluth.) Allen D. Look, secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

May 25-28, Philadelphia

The Design Engineering Show (Convention Hall.) Also, Fourth Annual Design Engineering Conference. Clapp & Poliak, Inc., 341 Madison Ave., New York 17.

May 27-28, Oklahoma City, Okla.

Eleventh Annual Oklahoma Safety Conference. Bob Eastman, manager, Oklahoma Safety Council, 1600 N.W. 23rd St., Oklahoma City, Okla.

July 29-30, Brisbane, Australia

1959 National Industrial Safety Convention and Exhibition. (City Hall.) J. E. McDonnell, secretary, National Industrial Safety Convention and Exhibition, P.O. Box 27, Brisbane-North Quay, Queensland, Australia.

Oct. 19-23, Chicago

Forty-seventh National Safety Congress and Exposition. (Conrad-Hilton Hotel.) R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

OFF THE JOB

Safety programs for plant and community

By HARRY C. JOHNSON

NSC Staff Representative, OTJ Safety Committee

The Saber-Toothed Power Mower

ONCE MORE it's time to caution anyone who has the chore of caring for a lawn. In the spring, when most of us would rather play golf or fish, the fertilizer spread during previous months has been working and the grass is getting out of hand. So the lawn mower must be put into service.

Toward the end of last mowing season, this letter came from my good friend, Gene Stuffing of the Carrier Corporation, Syracuse, N.Y.:

"In a few days you will receive a dirty old piece of steel which carries a story that may be of value to you in connection with rotary power accidents. This piece of steel was buried in a vertical position in the ground with about two inches of it sticking up above the soil level. Our employee knew this steel was there and had always carefully gone around it, inasmuch as he thought the piece was much longer than it was.

"One day his daughter decided to surprise him and cut the lawn for him. You guessed it—She ran over the piece of steel and cut the top section off of it. The chunk that was cut off has never been found and fortunately did not hit anyone.

"The mower did not stall but apparently sliced through the steel like hot butter. Naturally, the noise from the mower blade engaging with the steel scared the girl out of her wits. She immediately started to run and left the mower grinding away over the piece of steel.

"My only purpose in sending the specimen to you is to give you an exhibit as to the power of a rotary lawnmower blade when it is revved up and really running."

This piece of steel is 2-in. wide, $\frac{5}{8}$ -in. thick, and its over-all length is 8-in. Now it is in my desk at the NSC office.

Operating Hints

In 1958 an estimated 15,000,000 power mowers were in use, of which 90 per cent were the rotary type.

With the increasing popularity of the power mower there has been a proportional increase in accidents. While no national figures are available, a study by the Georgia State Department of Health showed:

1. One injury in seven results in some permanent disability.
2. Toes and feet are most often injured.
3. Seven of 10 persons injured in mower mishaps come in direct contact with the mower. The other three are hurt by objects thrown by the mower.

Selection of the type of mower is dependent on the size and terrain of the lawn. Frequently, city lots with small areas of lawn can be cut efficiently with hand mowers.

The rotary-type mower, the most frequently used type and usually the least expensive to buy and maintain, is primarily for cutting high grass and working over rough terrain.

The reel-type mower is usually more expensive to purchase and maintain and requires a smoother terrain. It is not as effective on high weeds or grass as the rotary, but seems to do a better job cutting a better lawn.

Riding power mowers are increasing in popularity for larger areas. However, they introduce additional hazards in the area of excessively steep terrains.

Power mowers may be powered by a gasoline engine or by an electric motor. The electric-powered mower is infrequently used, although it offers less weight and quieter operation.

With electric mowers, an electrically-grounded mower with a three-lead cord and a polarized grounding plug should be a requisite to eliminate possible shock hazard. If your mower does not have a ground as a standard part of the machine, attach a ground wire to the metal frame of the mower and attach the other end of the wire to a water pipe or an iron stake driven deeply into the ground. Tape the wire around the power cable to prevent entanglements.

On electric mowers the motor and the cord should both have an Underwriters' Laboratories seal or some other approved testing agency's recognition.

On gasoline engine-powered mowers, as on the electric-powered mower, there should be a positive and reliable on-off switch. Self-propelled walking-type mowers should have a positive means of disengaging the drive to prevent any unintended movement of the mower.

Riding-type mowers are like small tractors and, as such, should have as low a center of gravity as possible and broad wheel spread to minimize the possibility of their tipping, backwards or sideways.

All power mowers, in addition to good balance, should have wheels large enough to give easy operation over uneven terrain.

The handle of the mower should be long enough so the operator cannot pull the mower back onto his feet. If the mower has a reversible handle, it should be equipped with stops which can be engaged easily by the operator.

All moving parts on the mower, including chains, belts and gears should be enclosed to prevent contact.

On rotary mowers the lowest portion of the blade should not extend below the sides or rear of the housing, other than at discharge

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THE SAFETY LIBRARY



Reviews of books, pamphlets and periodical
articles of interest to safety men

By LOIS ZEARING, Assistant Librarian, NSC

Clinical Toxicology

Clinical Toxicology. By C. H. Thienes, M.D., Ph.D., and T. J. Haley, Ph.D. Third edition. 1957. Lea and Febiger. 457 pp. \$6.50.

THIS PUBLICATION is primarily a reference work to help the general practitioner or industrial physician act promptly and effectively in treating emergency poisoning cases.

The book lists poisons according to their major toxic action. While in some cases a poison is discussed under more than one heading, closely related poisons are mentioned under one heading.

The industrial hygienist will find the book useful as a reference or as a source of information in identifying various types of poisoning.

Information is offered on toxic dosages, pathologic changes, symptoms of poisoning, development of intoxication, poison elimination, and methods for combatting the effect of various poisons while in the body.

Certain sections concern convulsant, nerve, and muscle poisons, poisons of the blood, and an outline of symptom diagnosis. The industrial hygiene chemist might be interested in the section on chemical diagnosis of poisoning.

One table on the suggested relationship of animal-to-human susceptibility could be used by the industrial hygienist as a working basis for transferring results from animal tests to human susceptibility.

E. L. ALPAUGH

Fire Hydraulics.

Fire Hydraulics. By Gustave E. Bonadio. Arco Publishing Co., Inc., 480 Lexington Ave., New York 17. 273 pp. 1958. \$4.

THE PURPOSE of this work is to provide a self-teaching book on fire hydraulics. It presents the application of basic mathematics and physics of hydraulics limited to fire-fighting situations and problems.

The first section reviews basic arithmetic, algebra, and geometry,

all essential to comprehending the remainder of this book. The book covers important items such as pressure, velocity, fire streams, friction loss, nozzle pressure, pumps, and drafting water.

Each unit has four parts: facts, formulas, problems, and solutions. The facts and formulas are presented, but not derived. Most of the more than 250 problems were taken from fire department promotion examinations held in New York City. Clear-cut and understandable solutions are presented for all problems.

This book is an excellent aid for review for fire department chiefs, captains, and lieutenants, as well as a study guide for men preparing for such positions. Those in charge of industrial fire departments may find this book helpful for review purposes.

The author is a battalion chief of the New York City Fire Department with 20 years' experience as a fireman and line officer.

ROBERT CURRIE

Building Construction

Field Inspection of Building Construction. By Thomas H. McKaig. Published by F. W. Dodge Corporation, 119 W. 40th St., N. Y. 1958. 337 pages. \$9.35.

THE AUTHOR has drawn on his knowledge and experience, gained during more than 45 years in construction work, to prepare a publication of particular value to anyone whose duties entail protection of owner interest.

Procedures to follow and mistakes to avoid are detailed in chronological order, closely following the sequence of operation normal to building construction. However, a separate chapter is devoted to concrete.

The book opens with a general explanation of the function of inspection and then gives details on all steps necessary in the preliminary stage: contract documents,

prices, codes, work changes, rejection of materials or work in place, plans, survey, local codes, permits, and material storage.

Safety of the workers and public is covered generally, with quotes and excerpts from the New York State Industrial Code, as it applies to construction.

Chapter Three deals with actual operations: preparing for excavation, protection of existing facilities, excavation, drainage, blasting, piles and pile-driving, foundations, waterproofing, and back-filling.

Chapter Four discusses the structural framing stage, including reinforced concrete skeleton, steel fabrication and erection, wood framing, floors and loads, wall erection and roofing.

In Chapter Five the interior of the structure is considered: partitions, services, mill work, floor surfacing. Chapter Six is devoted to such items as hardware, painting and decorating, cleaning masonry, and final checkup. Chapter Seven deals with concrete.

Throughout the book various reference works, charts, and forms are shown. Sketches illustrate detail explanations.

The *General Conditions of Contract for Building Construction* form of the American Institute of Architects is shown as Appendix A. Appendix B lists reference sources.

This is a valuable publication for architects, superintendents, and resident engineers.

CLEMENT J. LUEPKE

Farm Chemicals

Farm Chemicals Handbook. Ware Brothers Company, Philadelphia 7. 376 pp. (Price not given.)

THE HANDBOOK consists of four general sections on various aspects of farm chemicals. Section 1 is a dictionary of plant foods and pesticides. Definitions of various fertilizer materials contain information on their origin, composition, and properties.

The dictionary includes facts on the major pesticides and materials used in their formulation. Wherever possible, information is given on the general uses of pesticides, their physical and chemical properties, toxicity, solubility, and other factors.

Plant food and pesticide laws of

BUILT-IN SENTRY GUARDS YOUR HEAD



Power-Bloc suspensions by E. D. Bullard Company

No matter how adjusted, a Bullard **Power-Bloc** suspension always automatically guarantees a safe limit of clearance between the top of your hat and the inside of your hat's shell. This lets your safety hat or cap work with shock absorber-like action, blocking power of overhead blows from crushing or lacerating your skull. Your hat is lighter, cooler, and more comfortable with a **Power-Bloc** suspension. Sweatband is made from a remarkable new foam plastic that actually shapes itself to your head as worn. Its highly absorbent characteristic keeps

perspiration out of your eyes . . . yet the sweatband can be easily washed new in soap and warm water.

Modernize your "HARD BOILED" hats and caps in seconds

Replace all your old Bullard hat suspensions for the extra comfort and safety of **Power-Bloc** . . . the suspension that makes all others obsolete.



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for complete specifications

every state are summarized. Other subjects covered in Section 2 are: fees, application information, required reports, minimum plant food content, registration fees, expiration dates, labeling regulations, and information pertaining to specific pest control materials. Names and addresses of state control officials are given.

Section 3 lists main offices and plant locations for plant food and pesticide manufacturers.

Section 4 is a guide to sources of chemicals, equipment, services, and supplies required by farm chemical manufacturers.

E. L. ALPAUGH

BOOKS AND PAMPHLETS

Accidents

Injuries and Accident Causes in the Boilershop Products Industry. Bureau of Labor Statistics. 1958. 64pp. Superintendent of Documents, Washington 25, D. C. (Bulletin No. 1237.) 50¢.

Atomic Power

Atomic Industrial Progress and Second World Conference, July-December, 1958. United States Atomic Energy Commission. 1959. 386pp. Super-

intendent of Documents, Washington 25, D. C. (Twenty-fifth Semiannual Report to the Congress.) \$1.25.

Studies in Nuclear Safety. Lectures presented at the Nuclear Safety Training School. Conducted by Union Carbide Nuclear Company, June 3-14, 1957. 1958. Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. (AEC Research and Development Report K-1380.) \$3.

Chemicals

Isopropylamine, 1959. 15pp. Manufacturing Chemists' Association, 1825 Connecticut Avenue, N. W., Washington 9, D. C. (Chemical Safety Data Sheet S-D 72.) 30¢.

Electricity

Motors and Generators. 1959. National Electrical Manufacturers Association, 155 East 44th Street, New York 17. (Pub. No. MG1-1959.) \$10.

Fuseholders, UL 512, Fourth Edition. November, 1958. 24pp. Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago 11. (Standards for Safety.)

Gases

Relief Valves for Anhydrous Ammonia and LP-Gas. 1st ed. 1958. 21pp. Underwriters' Laboratories, Inc.,

207 East Ohio Street, Chicago 11. (Standards for Safety—UL 132.)

Mining

Pneumoconiosis in Diatomite Mining and Processing. U. S. Public Health Service. 1958. 96pp. Superintendent of Documents, Washington 25, D. C. (Public Health Service Publication No. 601.) 55¢.

Experiments in Concentrating Lead Sulfide Slime. 1959. 13pp. U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa. (Report of Investigations 5444.) Free.

Pollution (Atmospheric)

Instruments for the Study of Atmospheric Pollution. Third Ed. 1959. 34pp. Committee on Air Pollution Controls, The American Society of Mechanical Engineers, 29 West 39th Street, New York 18. \$2.

Sewage

Safety in Wastewater Works. Committee on Safety. 1959. 64pp. Federation of Sewage and Industrial Wastes Association, 4435 Wisconsin Ave., Washington 16, D. C. (FSIWA Manual of Practice No. 1.) \$1.50.

MAGAZINE ARTICLES

Accidents

"Medical-Legal Aspects of Injuries to the Neck." Charles J. Frankel. *Journal of the American Medical Association.* Jan. 17, 1959. pp.216-223.

Aeronautics

"Aircraft Fire Detection Should Come of Age." Harvey L. Hansberry. *Quarterly of the National Fire Protection Association.* Jan. 1959. pp. 179-185.

"Safety Hazards of Nuclear Propulsion-II." Leo Seren *Space/Aeronautics.* Dec. 1958. pp. 48-52.

Alcohol

"What We Know About Alcoholism in Industry." Harrison M. Trice. *Public Health Reports.* Feb. 1959. pp. 153-158.

Chemical Industry

"Design and Construction of a Phosphate Insecticides Plant." Bruce F. Greek & F. E. Rosenberger. *Industrial and Engineering Chemistry.* Feb. 1959. pp. 104-112.

"Design Considerations for Continuous Pilot Plants at Elevated Pressure." E. L. Clark. *Industrial and Engineering Chemistry.* Feb. 1959. pp. 61A-64A.

"Designing for Safety." *Industrial and Engineering Chemistry.* Feb. 1959. pp. 52A-56A.

—To page 102

● HORSE SENSE ABOUT ATHLETE'S FOOT



Scientific research has upset old theories about Athlete's Foot. Skin specialists say that disinfectants are "futile, illogical, and potentially harmful."* They recommend *skin toughening* to make the skin resistant to fungus attack.

That's good horse sense.

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Onox mineral salts toughen the skin . . . increase resistance . . . prevents fungus growth. No fungus . . . no Athlete's Foot. Bathers like Onox. And it costs only 1¢ per man per week.

- **TRY ONOX 60 DAYS AT OUR RISK** If not completely satisfied, you owe us nothing. Write for full details and ask for:
- **FREE FOLDER:** Facts on Athlete's Foot including medical opinions from *Archives of Dermatology and Syphilology.

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check employee hearing faster, more accurately

with the

Beltone®

PORTABLE AUDIOMETER



Model 9-A, \$295. The most widely used audiometer for industrial hearing conservation programs. Model 9-A is equipped with individually equalized double air receivers, instruction manual, pad of audiogram cards, plastic dust cover.



Hearing Conservation Programs play an increasingly vital role in industrial safety plans. To insure against future excessive compensation claims, pre-employment hearing tests by scientific audiometric methods are a necessity.

Experts agree that the Beltone Portable Audiometer gives industry outstanding advantages for testing. Leading companies have turned to the Beltone Portable Audiometer because it gives them these unsurpassed features:

1. **Accuracy**—exclusive one tube electronic circuit and single induction coil assure greater accuracy through trouble free circuits.
2. **Ease of Operation**—large easy-to-read dials allow operator to prepare audiograms quickly, simply, with minimum amount of effort.
3. **Weight**—only 11 pounds—far less than most previous audiometers.
4. **Low Cost**—no other audiometer costs so surprisingly little to buy, service, and maintain.



Model 10-A, identical to Model 9-A, except that it is equipped with calibrated masking tone and bone conduction receiver. Model 10-A, \$350.

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Ⓢ This new Safety-Guard Insert with its integrated, revolving guard gives you built-in top performance and test results show the safety factor is increased up to 75%.

Ⓢ The Carroll Safety-Guard Insert meets all requirements of a cup wheel guard as specified by the ASA Safety Code.

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Insist on safety-first with Carroll Safety-Guard Insert.



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Winners of National Safety Council

Awards for outstanding records

AWARD OF HONOR

American Can Co., Montreal, Que., Canada, Plant.

Continental Can Co., Inc., Hazel Atlas Glass Div., Washington, Pa.

Ford Motor Co., four awards: Cleveland, Ohio, Engine Plant #2; Division Staff, Engine & Foundry Div., Dearborn, Mich.; General Offices, M-E-L Div., Dearborn, Mich.; General Offices, Tractor & Implement Div., Birmingham, Mich.

Ford Motor Co., three awards: Cleveland, Ohio, Plant No. 1; Fairfax-Sharonville Plant, Cincinnati, Ohio; Trim Plant, Highland Park, Mich.

Greenwood Mills, Durst Plant, Greenwood, S. C.

Gulf States Utilities Co., Beaumont, Texas.

Harper-Wyman Co., Chicago.

International Telephone & Telegraph Corp., Kellogg Switchboard & Supply Co., Communications Div., Chicago.

Kimberly Clark Corp., Main Office Units, Neenah, Wis.

Lago Oil & Transport Co. Ltd., Aruba, Netherlands Antilles, Refinery.

National Broadcasting Co., Headquarters, New York, N. Y.

North American Aviation, Inc., Atomics International, Canoga Park, Calif.

Penn Controls, Inc., Goshen, Ind., Plant.

Procter & Gamble Co., Manufacturing, Administration & Research Bldg., Cincinnati, Ohio.

Radio Corporation of America, Electron Tube Div., Harrison, N. J., Plant.

Rohm & Haas Co., Bristol, Pa., Plant.

Union Carbide Corp., National

Carbon Co., Jersey City, N. J., Warehouse.

Southern Natural Gas Co., Birmingham, Ala.

J. P. Stevens & Co., Inc., North Andover, Mass.

Union Carbide Corp., Union Carbide Plastics Co., Bound Brook, N. J., Plant.

U. S. Steel Corp., American Steel & Wire Div., Joliet, Ill., Works.

Western Electric Co., Inc., three awards: Allentown, Pa., Works; Burlington, N. C., Works; Greensboro, N. C., Works.

Western Electric Co., Inc., two awards: Hawthorne Works, Chicago; Merrimack Valley Works, North Andover, Mass.

AWARD OF MERIT

Aluminum Company of America, Richmond, Ind., Works.

FOUR TYPES OF AWARDS are given by the National Safety Council to members in recognition of outstanding achievement in accident prevention:

1. Award of Honor

Available to (a) units which complete 3,000,000 man-hours without a disabling injury, and (b) units whose records, though not perfect, meet exacting standards. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency and severity rates.

2. Award of Merit

Has similar but less exacting requirements. Minimum number of man-hours is 1,000,000.

3. Certificate of Commendation

For injury-free records covering one or more calendar years and totaling 200,000 to 1,000,000 man-hours.

4. President's Letter

For injury-free records covering one or more calendar years and totaling less than 200,000 man-hours.

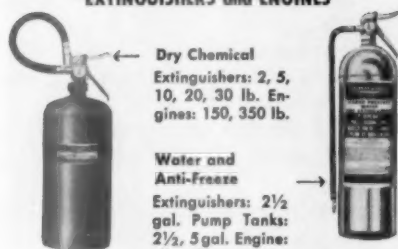
Details of eligibility requirements may be obtained by writing to Statistics Division, National Safety Council.

National Safety News, April, 1959

AMERICAN LaFRANCE

A SINGLE SOURCE for the BEST in Industrial Fire Protection

EXTINGUISHERS and ENGINES



Dry Chemical
Extinguishers: 2, 5,
10, 20, 30 lb. En-
gines: 150, 350 lb.

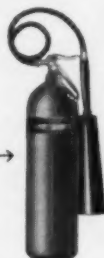
Water and Anti-Freeze

Extinguishers: 2½
gal. Pump Tanks:
2½, 5 gal. Engine:
40 gal.



Foam
Extinguishers: 2½,
5 gal. Engine: 40
gal.

Carbon Dioxide
Extinguishers: 2½,
5, 10, 15, 20 lb.
Engines: 50, 75,
100 lb.



Soda-Acid
Extinguishers: 2½
gal. Engine: 40 gal.



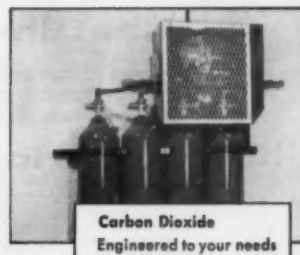
**Vaporizing
Liquid**
Extinguishers: 1,
1½ qt.



Whatever the fire hazards, large or small . . . whatever Underwriters' Classification they fall into . . . American LaFrance has precisely the *size* and *type* of equipment to provide maximum protection with maximum speed and safety in operation.

Shown on this page are just a few of the approved extinguishers and other items of fire protection equipment available from American LaFrance.

For detailed information on industrial fire equipment, send for our free CATALOG 571 . . . containing the famous *American LaFrance Fire Extinguisher Characteristics Chart* (now a standard reference for the fire protection field).



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10 to 160 gal. capacity

Foamite Airfoam
Nozzles, liquid and
fixed systems.



Hydrostatic Test Pumps

Respiratory and First Aid Equipment



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American Can Co., Bradley Container Corp., Maynard, Mass.

American Can Co., Niagara Falls, Ont., Canada, Machine Shop.

Anchor Hocking Glass Corp., Plant No. 3, Winchester, Ind.

Armco Steel Corp., Butler, Pa., Works.

Astrodyne, Inc., McGregor, Tex.

British American Oil Co., Ltd., Edmonton, Alberta, Refinery.

Central Power & Light Co., Corpus Christi, Tex.

Chrysler Corp., three awards: Ohio Stamping Plant, Twinsburg, Ohio; Parts & Equipment Mfg. Div., Eight Mile Road Plant, Detroit, Mich.; Stamping Div., Vernor North Plant, Detroit, Mich.

Consolidated Paper Corp., Ltd., Laurentide Div., Grand'Mere, Que., Canada.

Container Corporation of America, Paper Mill Div., Manayunk, Philadelphia.

Continental Can Co., Inc., two awards: Hazel Atlas Glass Div., Montgomery, Ala.; St. Louis, Mo., Plant.

Continental Can Co., Inc., No. 40 Omaha, Neb., Plant.

Du Pont of Canada Limited, Textile Fibres Dept., Maitland, Ont., Canada.

Fischer Lime & Cement Co., Fischer Steel Fabrication Plant, Memphis, Tenn.

Ford Motor Co., three awards: General Offices, Ford Div., Dearborn, Mich.; Manufacturing Services, Dearborn, Mich.; Glass Plant, Nashville, Tenn.

Ford Motor Co., three awards: Cleveland, Ohio, Foundry; Indianapolis, Ind., Plant; Manufacturing Services, Highland Park, Mich.

General Electric Co., three awards: High Voltage Switchgear Dept., Philadelphia; Household Refrigerator Dept., Louisville, Ky.; Locomotive & Car Equipment Dept., Erie, Pa., Plant.

B. F. Goodrich Aviation Products, B. F. Goodrich Co., Akron, Ohio.

The B. F. Goodrich Co., Works Technical Group, Akron, Ohio.

B. F. Goodrich Industrial Prod.

Co., Industrial Products, Akron, Ohio.

B. F. Goodrich Footwear & Flooring Co., Watertown, Mass.

B. F. Goodrich Tire Co., two awards: Miami, Okla., Plant; Oaks, Pa., Plant.

Granite City Steel Co., Granite City, Ill.

Greenwood Mills, Greenwood, S. C., Plant.

Kansas Gas & Electric Co., Wichita, Kan.

Kellogg Co., Battle Creek, Mich., Plant.

Kentucky Utilities Co., Old Dominion Power Co., Lexington, Ky.

Kimberly-Clark Corp., Research and Development Div., Neenah, Wis.

Poinsett Lumber & Mfg. Co., The Singer Manufacturing Co., Anderson, S. C., Plant.

Radio Corporation of America, Television Div., Findlay, Ohio, Plant.

Radio Corporation of America, National Broadcasting Co., Inc., Pacific Div., Burbank, Calif.

Shell Chemical Corp., Martinez, Calif., Plant.

Smith-Corona Marchant, Inc., Portable Typewriter Div., Groton, N. Y., Plant.

J. P. Stevens & Co., Inc., Merrimack Plant, Dracut, Mass.

Sundstrand Machine Tool Co., Sundstrand Turbo, Pacoima, Calif., Plant.

Sutherland Paper Co., two awards: Divisions 2 and 5, both in Kalamazoo, Mich.

Sutherland Paper Co., Div. 9, Kalamazoo, Mich.

Union Carbide Chemicals Co., Institute Plant, South Charleston, W. Va.

Union Electric Co., Power Production Div., St. Louis, Mo.

United States Rubber Co., three awards: Joliet Arsenal—Kankakee Unit, Naugatuck Chemical Div., Joliet, Ill.; Naugatuck, Conn., Chemical Plant; Naugatuck Chemical Div., Painesville, Ohio, Plant.

U. S. Steel Corp., Fairfield, Ala., Tin Mill.

Washington Gas Light Co., Washington, D. C.

Western Electric Co., Inc., two

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Make sure of non-slip footing at lowest cost with quick drying, abrasive filled Ferrox. Simply trowel on. One gallon covers approximately 35 to 40 square feet.

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THEY PROBE THE FUTURE OF DEEP-SEA TELEPHONY



"Dry Land Ocean," under construction at Bell Laboratories, simulates ocean floor conditions, is used to test changes in cable loss. Sample cables are housed in pipes which contain salt water under deep-sea pressure. The completed trough is roofed in and is filled with water which maintains the pipes at 37° F., the temperature of the ocean floor.

Deep in the ocean, a submarine telephone cable system is extremely hard to get at for adjustment or repair. This makes it vitally important to find out what can happen to such a system *before* it is installed.

Bell Telephone Laboratories engineers do this by means of tests which simulate ocean floor conditions on dry land. Among many factors they test for are the effects of immense pressures on amplifier housings and their water-resistant seals. They also test for agents which work very slowly, yet can cause serious destruction over the years—chemical action, marine borers and several species of bacteria which strangely thrive under great pressures.

Through this and other work, Bell Telephone Laboratories engineers are learning how to create better deep-sea telephone systems to connect America to the rest of the world.



Highly precise instruments developed by Bell Laboratories engineers are used to detect infinitesimal changes in cable loss—to an accuracy of ten millionths of a decibel.



Seawater and sediment in bottle characterize ocean floor. Test sample of insulation on coiled wire is checked for bacterial attack by conductance and capacitance tests.



BELL TELEPHONE SYSTEM



Aluminized Heat Barrier Garments
protect melters from splash, radiant heat
...let them work longer in hot spots

Now men who have to work in hot spots—have to face temperatures that scorch cloth, burn skin in seconds—can beat the heat with light weight, flexible reflective-protective garments made of "Scotch-shield" Brand Aluminized Fabric.

Steel melters, for example, can work in front of an electric furnace during the full tapping and slag removal period without discomfort—and with minimum danger of spatter burns.

With this better protection against radiant heat and ease of action, repair and maintenance work can be done without shutting down furnaces and kilns—with speed and safety impossible with conventional "insulation types" of safety clothing.

Garments made of "Scotch-shield" Aluminized Fabric reflect up to 90% of radiant heat—last up to 50% longer than old-fashioned, cumbersome gear. For further facts and samples, mail this coupon today.



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 Please send me complete information and free samples of "Scotch-shield" Brand Aluminized Fabric.

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 Firm _____
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awards: Laureldale, Pa., Plant; Detroit Installation Area, Telephone Sales Div., Plymouth, Mich.

Westinghouse Air Brake Co., Air Brake Div., Wilmerding, Pa.

Westinghouse Electric Corp., Electronic Tube Div., Bath, N. Y., Works.

West Point Mfg. Co., Langdale, Ala., Mill Division.

**CERTIFICATE OF
 COMMENDATION**

Fischer Lime & Cement Co., four awards: Concrete Block Plant; Main Plant—Warehouse; Ready Mix Concrete Plant; Steel Erection Plant, all of Memphis, Tenn.

Tennessee Valley Authority, Chemical Plant Additions, Wilson Dam, Ala.

Special Award

Buckeye Cellulose Corp., Cellulose & Specialties Div., Memphis, Tenn. (For establishing the world record in the pulp & paper industry.)

Around the Compass

—From page 9

each year the 10 per cent becomes more difficult, and requires greater effort, time, and money devoted to traffic accident prevention.

"Currently the state is undergoing a financial crisis. One of the potential effects of this financial crisis may well be reflected in the traffic record for 1959. While money is not the only requisite for improving accident prevention activities, it is vital to all elements of the state's program of enforcement, engineering, and educational activities dealing with traffic.

"How much traffic accident prevention Michigan can afford can only be answered by the taxpayers. They want prevention rather than paying the costs of accidents."

**New Managers
 Visit NSC Headquarters**

During the week of February 2, two new council managers were in the NSC offices to discuss their responsibilities with staff personnel. These managers are Winton D. Steller, new manager of the Safety

Council of Middletown, Ohio, and John Coll, new executive director of the Memphis-Shelby County, Tenn., Safety Council.

Mr. Steller replaces Dean A. Girtton, who resigned in September to become chief of police of Lebanon, Ohio. Mr. Coll replaces Eugene Glaze, who is now executive director of the Safety Council of the Chattanooga, Tenn., Chamber of Commerce.

Kansas City Council Slates Off-Job Contest

The Kansas City, Mo., Safety Council has announced an off-the-job safety contest. One hundred companies have been invited to take part.

In announcing this contest, Paul Kramos, industrial vice-president for the council, said: "Records compiled by a number of large companies have shown the number of off-the-job injuries sustained by their employees to be amazingly high—sometimes in ratio of 10 to 1 compared with the number of in-plant injuries for the same periods. On the basis of such a ratio, the national total of man-hours lost because of non-work injuries in all industries is tremendous."

State Traffic Management Course Held

The first of four regional courses in state traffic management was held at the Center for Safety Education of New York University January 12-16.

Dr. Walter Cutter, director of the Center for Safety Education, was the course director. Other instructors were Paul Blaisdell, Association of Casualty & Surety Companies; Maxwell Halsey, on temporary assignment at New York University; and Paul F. Hill of the National Safety Council.

State traffic management representatives attending this course were from Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Jersey, New York, and Ontario, Canada.

The courses are being held under the auspices of the Association of Casualty & Surety Companies, the ESSO Safety Foundation, New York University, and the National Safety Council.

Now! FULL-POWER Fire Fighting with this complete dry chemical line!



Kidde top-rated portables and wheeled units kill more fire...faster!

From the powerful new 2½-pound portable, on up to the giant 200-pound wheeled unit, Kidde dry chemical extinguishers pack the *extra* punch needed for stubborn blazes, for *full-power* fire fighting. Available in pressurized 2½, 5, 10, 20 and 30-pound capacities, Kidde dry chemical portables feature simple, one-two operation, are easiest of all portables to operate, even while wearing gloves. Kidde portables have no valves to turn, no pins to pull, need no bumping or inverting. Just aim, pull trigger, and fire's out! All are quickly and easily pressurized, have dust- and moisture-proof gauges which show at a glance when unit is charged.

The 200-pound Kidde pressurized wheeled unit discharges a 40-foot dry chemical stream faster, has an *extra* 50 pounds of fire-smothering dry chemical to knock down fire quicker. It's faster and easier to operate... just remove pin, swing toggle lever, and flip on-off lever. Easy to maneuver because of its low center of gravity and larger wheels. Truly a one-man fire engine!

All Kidde extinguishers are granted top rating by Underwriters' Laboratories, are the finest extinguishers on the market today. Get more information about this *complete* line of *full-power* fire fighting equipment. Write to Kidde today!

Kidde



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Monarch®
Model F-506

Model F-300's smaller window is also interchangeable with a gas welding front! Has most of the features listed below.



**you get THE MOST
from Monarch®**

A REAL

face saver!

These Monarch® Face Shields by Fibre-Metal give wide face area protection and head protection with extreme comfort and convenience. Construction is precise and rugged...to give long life under hard work conditions. Special features and accessories make Monarchs the most used and most versatile face shields on the market. **Get our Catalog No. 261 Ask your Welding & Safety Distributor!**

**WHEN YOU BUY...
check these features!**

- 1 RUGGED CONSTRUCTION for Full Protection
- 2 EXTENDED OVERHEAD PROTECTION with Full Ventilation
- 3 PRE-FORMED WINDOWS 9 3/4" x 19", or 24-Mesh Steel Screen
- 4 QUICK-LOK Attachment enables use of SuperGlas or SuperLite (Aluminum) Safety Cap
- 5 "Floating" Headgear with Ratchet Head-size Adjustment (Patented), NO HAIR PULLING
- 6 Leatherette or Genuine Leather Sweat-band
- 7 Heat-resistant, full-gage, formed Vulcanized Fibre Deflector
- 8 Snap fasteners attach windows at rabbeted deflector edge with its dust-light seal
- 9 "Up" or "Down" positions of Face Shield easily set on adjustable friction joints

The **FIBRE-METAL** Products Company

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In CANADA: Fibre-Metal (Canada) Limited, Toronto

See us at The WELDING SHOW—Booth 434—Chicago

Circle Item No. 45—Reader Service Card

Wire from Washington

—From page 31

future achievement is the attention manufacturers devote to safety in the continuing development of vehicle design. There is an immense job to be done, both from the standpoint of protecting vehicle occupants from injury in the event of collision, and in behalf of the more fundamental concern of accident prevention . . . Easy driving is not yet a valid synonym for safe driving."

The report says more specifically:

"There are residues of weakness in automotive design and function, however, to which manufacturers and public officials alike need to give further attention."

On horsepower, the report concludes "there is little evidence that excess horsepower encourages driving faster than the safe design speeds of modern highway." The report presents evidence that cars with 110 horsepower or less had the highest accident involvement rate, regardless of other variables such as speed and the driver, and that this rate was true for both day and night conditions.

4. *Educational Programs to Promote Highway Safety.* "The inclusion of driver training is recommended as a phase of the existing federally aided education program among the states."

5. *Design and Physical Characteristics of Highways.* Support is given controlled access highways, facilities that have interchanges for crossing and turning movement, separate roadways for opposite direction travel, and other "built-in" safety features. "The controlled access highway is at least two and a half times safer than the ordinary highway . . ."

6. *Other Matters:*

a. *Human Factors.* "It is quite evident that there is as yet no clear understanding of the relation of human factors to highway safety . . . very little knowledge is available regarding the basic human processes that driving requires."

b. *Speed.* A survey was made of 11 states, on open rural highways of modern design, involving 290,000 drivers and 10,000 accidents. (It uses a new measure, "involvement rate"; "involvement" means one driver or one vehicle in one accident, and the rate is the number of involvements for every 100 million miles of travel.) The involvement rate at 35 miles per hour was 600, whereas that for 65

miles an hour was less than 100:

"Combined consideration of accident frequency rates and severity reveals that the number of injuries on a miles-traveled basis is at its minimum in the speed range of 45 to 70 miles per hour" . . . "and remained fairly uniform between speeds of 45 and 70 miles per hour".

c. *Day and Night Rates.* Night traffic rates are double those of daytime rates; and as speeds exceed 55 miles per hour, night accident rates become relatively much higher. This fact "suggests the desirability of lower night speed limits, at least on high-speed rural highways."

d. *Holiday Accident Rates.* On the average, holidays are shown to have 25 per cent more deaths for the same driving exposure. Christmas and midweek one-day holidays have the worst records. Says the report: "These findings fortify the decision of many safety organizations to campaign for special driving precautions over the holidays."

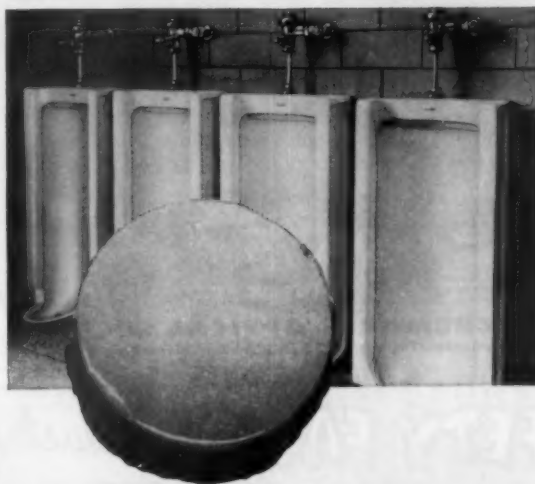
e. *Traffic Accident Records.* Such records "suffer notably from inaccuracy and incompleteness" and need better analysis.

f. *Cost of Traffic Accidents.* A new cost estimate is revealed. The total cost of traffic accidents, including property damage, wage loss, medical expense, and the overhead cost of insurance, is estimated at up to 1 cent per mile of travel, or an approximate equivalent of 12.5 cents per gallon of gasoline consumed for highway purposes.

The report presents an 8-point "adequate highway safety program":

1. Effective identification of the traffic accident
2. Enlargement of fundamental knowledge
3. Support for highway research
4. Leadership and administration: "The responsibility for direction of the highway safety effort is clearly official. Federal, state and local governments have dealt hardly at all with the problem in a coordinated way up to this time, often relying on interested nonofficial groups to stimulate conferences and other joint action. Lack of an official working focus in the Federal Government may well have been a contributing factor."
5. Professional and technical competence
6. Legislative action
7. Better coordination and support of closely related activities, and
8. Public relations.

New Huntington Odor Bar Blockettes DESTROY ODORS by Killing Germs



*Work chemically in urinals, guaranteed
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Only Huntington Odor Bar Blockettes sanitize as they deodorize. Moisture immediately releases an antibacterial chemical vapor that almost totally (94.4%) destroys bacteria. Blockettes remove the causes of bad odor instead of covering it up. You must be satisfied or your money back. Send for a free trial package today.



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Circle Item No. 46—Reader Service Card



Fastest Custom Fit Frame In The World

FITS ALL YOUR WORKERS COMFORTABLY:

- Patented Retrax® Temples slide in or out for instant fit.
- Universal Nose Bridge, a perfect fit for every worker.

ACCOMMODATES YOUR PRESENT STOCK OF 57 LENSES:

- Spread-end frame makes lens replacement easy
- For plastic, glass or prescription lenses

- Nylon hinges for superior strength
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For details, see your Authorized Eye Savers Supplier



WATCHMOKET OPTICAL CO., INC.

232 West Exchange St. PROVIDENCE 3, R. I. In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26, Winnipeg.

Marine Safety. The Coast Guard initiated a new accident-reporting program for motorboats or pleasure craft on federal waters. Where loss of life results from the accident, a report must be made in 48 hours. Other accidents causing incapacitation for more than 72 hours or property damage of more than \$100 must be reported in 5 days. A special Coast Guard accident report form is prescribed.

Aviation Safety. The Federal Aviation Agency established new procedures to centralize information on "near-miss" incidents, to determine what action may be needed.

Senator Bridges (N.H.) called the Senate's attention to public queries about the adequacy of present medical tests of commercial airline pilots to assure flying safety, with special reference to older pilots. (FAA has a 23-year minimum age, but no maximum age for pilots). As a result, FAA announced it would re-examine all medical requirements for pilots.

Minor Mishaps

—From page 33

It was apparent that operator accidents could occur from fatigue, temporary loss of rhythm or coordination, simple carelessness, distractions, overconfidence, or unintentional depression of the foot pedal by the worker or another employee.

After checking with the manufacturer's representative and finding no safety device available, our company reconsidered the problem.

We decided to try the approach used in the metal industry with punch presses and metal stamping machines. We eliminated the foot pedal and installed two buttons, one on either side of the machine and outside and below the stamping area. Both buttons must be depressed simultaneously to trip the stamping head.

Both of the operator's hands must be completely outside the stamping area, when the machine is in operation. This eliminates the chances of human error previously possible.

By placing the buttons below the level of the pad, we also made it

SAFETY FACTS for Industry

Safe-Hi

UNOLYN COIL SHOCK ABSORBER

NOW! ADD NEW SAFETY TO CONSTRUCTION WORKERS BELTS AND LANYARDS!

1 LB. OF UNOLYN ABSORBS APPROX. 25,000 FT. LBS. OF KINETIC ENERGY...STRETCHES TO 500% OF ITS LENGTH!

STOPS THE FALL! PREVENTS THE JOLT! SAVES THE MAN!

Safe-Hi's Unolyn coil shock absorber is available as separate unit to snap into lanyards or construction workers belts and to solve many other shock problems! Also available as an integral part of any Safe-Hi Nylon Lanyard. WRITE FOR COMPLETE DETAILS...

Safe-Hi ROSE MANUFACTURING COMPANY
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NO REBOUND!
NO SUDDEN STOP!

A 50' LENGTH OF NYLON LANYARD IS COILED AROUND THE 10' LENGTH OF UNSTRETCHED UNOLYN TO PROVIDE A FULL-STRENGTH LANYARD AFTER UNOLYN HAS ABSORBED THE SHOCK!

possible, for the operator to safely stretch garments smoothly and tightly across the pad for marking.

The right button must be pressed through the garment, as the garment is grasped in the hand. To facilitate finding that right button by touch, we raised it slightly above the level of its surrounding plate. At a total cost of \$18, this dangerous machine has been made safe!

A test period of operation not only proved this fact, but made the machine easier and faster to operate. Buttons have been installed on all our stamping machines. Productivity has increased about 15 per cent.

Employees, who first looked on our efforts with amusement and even suspicion, gradually became impressed with the sincerity of the program. A new respect for the safety committee and for the company soon developed.

Today the senior operators are the strongest supporters of the change. They know the machine is safer to operate. That, together with their appreciation for the company's concern for their well-being, combine to provide a greater sense of job security.

A second example, involving our alterations department, concerns a sewing machine needle assembly. The small *foot*, through which the needle flashes as the machine operates, was supposed to act as a guard.

It proved to be inadequate to prevent operators' fingers from being drawn over its slightly raised *toe* and into or under the needle. A check showed that operators frequently stitched their fingers to their work. The danger of a serious injury was obvious. Again, fortunately, it was a minor accident that focused our committee's attention on this problem.

The new guard, welded to the old one, is slotted to permit close observation of the work. Yet, no finger can be drawn under a working needle, or even deliberately forced over the guard or between the guard and the needle.

While threading the needle seemed a little slower at first, familiarity with the new guard has eliminated



Gunpowder mixing unit consists of two screw agitators bowl and agitator troughs are fabricated of Ampco Metal plate; bottom ends are sand-cast of Ampco Metal.

Makes explosives mixing less explosive!



One of two screw agitators cast of Ampco Metal and then machined.

Hazards minimized by mixer of spark-resistant AMPCO® METAL

As a safety engineer, you know the value of using Ampco Safety Tools for low-cost protection in areas where a hot spark might cause fire or explosion. But did you know that the same metal used in these tools is often fabricated into equipment to reduce the hazards of dangerous manufacturing operations?

Take the job of mixing gunpowder, for example. It's such a touchy process that mixing areas are confined to concrete cells or blast-houses. Because the ingredients in gunpowder mixes are so unstable, the greatest care must be exercised in using mixing tools.

That's why so many leading explosives manufacturers use mixers fabricated of Ampco Metal. It not only resists sparks—it also resists the corrosive and highly abrasive effects of gunpowder mixes. (Your production and maintenance people like that.) One powder-plant manager reports that his Ampco mixer has outlasted other types by two to one!

Does this suggest any application for Ampco Metal in your plant? Talk it over with your production men — and with an Ampco field engineer. Or write for details. Ampco Metal, Inc., Dept. 208-A, Milwaukee 46, Wis. West Coast plant: Burbank, Calif. — Southwest plant: Garland (Dallas County), Texas.

T-32



AMPCO

Circle Item No. 49—Reader Service Card

JACKSON Face Shields

The Musketeer headgear combines the easy to adjust Adjust-O-Lok headgear with a spark deflector; a number of face shield visors may be used. Also adapted for use with Jackson safety caps.



Musketeer with 15½" wide visor made in shades of green, and, in choice of thicknesses, in clear plastic; also in 24-mesh wire screen. Musketeer also carries all the J-1 visors shown below.



Musketeer with fiber visor and welding lens for scarfing, furnace work, heavy gas welding, cutting.



Face shield type J-1 carries metal edged visors in shades of green, and in various weights of clear plastic. All in depths of 4, 6, and 8 inches.



Face shield F-1 fits all types of Jackson safety hats. Two pivoted aluminum frame members carry all Musketeer and J-1 face shield visors.

Sold Everywhere by Better Welding Supply and Safety Products Dealers

Jackson Products

31739 Meund Road, Warren, Michigan

Circle Item No. 50—Reader Service Card

that problem along with the accident danger. The operators' greater peace of mind again has produced increased respect for the company and its program, along with higher productivity.

Safety committee members wear prominently lettered uniforms. This distinction helps to raise members' prestige and recognition among employees, and facilitates the committee's work.

"As we stated in our opening bulletin to all employees months ago, our goal is to make our plant the cleanest, safest, and most pleasant place to work in our industry in this area," Mr. Gershon said.

Power Sweepers

—From page 25

into adjacent unpaved areas, or to accumulate it in piles where it can be shoveled into a dump truck.

The second type of specialty sweeper worth mentioning, is called *vacuum sweeper*. This sweeper is designed specifically for airport apron and runway areas and has been developed as a result of the introduction of jet airplanes into our military and civilian air terminals.

Any foreign matter, regardless of size, sucked into a jet engine can cause extensive and expensive repairs. It is mandatory that facilities used by jet planes be kept clean and free of all objects that can cause failure of these engines.

This particular unit is 30½ ft. long, has a cleaning swath of 8 ft., can clean at a speed of approximately 25 mph, has a hopper capacity of approximately 80 cu. ft., picks up debris and soil through a vacuum system, and is estimated to cover 1 million sq. ft. per hour.

The third type of specialty sweeper or vacuum unit available is a bit revolutionary in scope. Visualize a paved or grass area covered with miscellaneous trash, including beer cans, paper cups and plates, cigaret butts, and leaves. This machine, which resembles an overgrown carpet sweeper but motorized and having an attached trash bag, not only sucks up the miscellaneous litter and trash but also shreds the trash, making it possible to pack more litter into the attached trash bag.

Circle Item No. 94—Reader Service Card



GETS-A-LITE GUARD and GUIDE

Quickly and Easily Installed
by Anyone—No
Tools Needed!

- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefinitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER removed.
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket, enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

GETS-A-LITE CO.—Dept. NSN-49
3845 N. Milwaukee Ave., Chicago 41, Ill.

Accepted Procedure...

against
**Athlete's
foot**
with modern
DOLGE Fungicides

DUSTING Alta-Co Foot Powder on the feet and inside shoes

FOOT BATH Alta-Co Powder dissolved in water for group prophylaxis

FLOOR WASH H.D. Fungicide diluted in 300 parts water—mop on floor

Write for
Booklet on
Athlete's Foot
Control

DOLGE
WESTPORT, CONNECTICUT

Circle Item No. 51—Reader Service Card

National Safety News, April, 1959

The capacity of the trash bag is 3 to 4 cu. ft., and performance is satisfactory. However, this machine will not pick up rocks, pebbles, soda bottles, or the like, nor is it ideal for cleaning inside areas where large amounts of dust have accumulated, since dust tends to penetrate the trash bag and go back into the air.

Surveying the need. Let us now consider some of the more important reasons why we would purchase a power sweeper.

One of the major considerations to be examined in the purchase of any equipment is the *need*. What types of areas are under consideration? What is the soil condition? Can it be handled by means other than power sweeping? Most important, will the sweeper be used often enough to justify the expenditure? Certainly we would not want to purchase a power sweeper if the areas are not large enough to permit the unit to maneuver, nor if the soil accumulation is so light that the sweeper is only used one day of the week.

The quality of the sweeping job to be performed should also be con-

sidered. Do you want a rough sweeping or a fine sweeping operation? Is the type of soil easily handled by the sweeping unit? Do you want *wet* or *dry* sweeping? Will the sweeper spread dust and possibly have a detrimental effect on manufacturing processes or finished products? Answers depend on the nature of the operation carried on in the areas to be swept. Outside, a rough sweeping may suffice while in a food processing plant *dust free* operation is required.

Another major consideration of the prospective purchaser of power sweeping equipment is the possible man-hour and dollar savings that will result. These considerations are based on such questions as: Will employment of a power sweeper do the job in less time, the same time, or more time than we are now expending? Will this sweeper save me enough labor to move personnel off my payroll, or will it save enough man-hours to be available for other necessary and important assignments? What are my present costs for sweeping these areas, and what cost will be anticipated for cleaning with a power sweeper?

Before making any decisions relative to sweeping costs, consider *all* elements involved in the operation. For manual sweeping operations costs to be considered are:

1. Man-hours required.
2. Cost of floor brushes and replacements.
3. Cost of sweeping compound, if used.

For power sweeping, cost items to be considered are:

1. Man-hours required.
2. Cost of replacing brushes and flaps.
3. Oil and gas consumption.
4. Depreciation of the unit.

These totals, when compared, will give some basic idea of anticipated manpower and dollar savings, if you decide to use power sweeping.

One last point is the maintenance service required by the sweeping unit, and the service available by the manufacturers. These machines are continually working in an environment of dust and soil. It is not unreasonable to assume that we will be faced with some mechanical difficulties. We must be sure the sweep-

GET MORE FOR YOUR SALT TABLET MONEY!

You pay only the regular price of packaged impregnated salt tablets... you get the complete Medical Supply Company ANTI-FATIGUE STATION:

New AIR-LOCK DISPENSER—All-plastic disposable dispenser locks out air and fumes, and moisture even while dispensing tablet. Gives unequalled protection from moisture deterioration... especially important in areas where humidity is a problem and ordinary dispensers are used.

Special CONTROLLED-ACTION TABLETS—Individually incased salt crystals fight heat fatigue fast from moment taken, assure controlled-rate protection to worker who takes 2 tablets every 1½ to 2 hrs.

Free EDUCATION PLACARD tells why, how, when to take salt tablets... combats false fears, promotes safe, effective use.

Ask for this TEST-TUBE DEMONSTRATION—See this clear demonstration of how MSCO Controlled-Action impregnated salt tablets release salt gradually after taken... give extended protection against heat fatigue, and protect workers against stomach upset.



*Specialists
in first aid*



for demonstration by local representative
write name, company and address in page margin and mail to

Medical Supply Company

Rockford, Illinois

CAMESCO Medical Supplies, Ltd., Toronto 18



Circle Item No. 52—Reader Service Card

er is easy to service and that the manufacturer of the unit will provide fast and expert service, when needed.

Fuel and power. Types of fuel and power available for sweeping units can have a direct relationship to maintenance requirements.

Gasoline power is satisfactory for most sweeper application. It is convenient, easy to use, and most modern plants have ample ventilation for exhaust fumes.

Another type of fuel available for

these units is liquefied petroleum gas. This fuel is usually recommended for sweepers used in confined manufacturing areas, bakeries, food plants, and similar areas. This gas reduces exhaust fumes and odors. Also, its near-perfect combustion leaves no carbon residue, helps prolong engine life and reduce engine maintenance costs.

A third type, battery power, eliminates noise and odor problems, and is ideal for use in hospitals and other locations where noise is objectionable.

WATER-COATED 30° INCLINE... STILL NO ACCIDENT



Get Long-Life Protection Against Slipping with Alcoa Abrasive Tread Plate

A slick, water-soaked surface in a vital production area with heavy traffic has all the elements of a safety director's bad dream. Only Alcoa® Aluminum Abrasive Tread Plate prevents such a nightmare. Made with tough particles of fused aluminum oxide, it remains slip-proof even when wet, oily or greasy. It prevents costly slipping accidents that can injure workers, cause production breakdowns and higher insurance rates.

Find out how you can eliminate hazardous conditions on ramps, aisles, catwalks and other areas with easy-to-install, corrosion-resistant Alcoa Abrasive Tread Plate. Check the coupon below, write Aluminum Company of America, 1685-D Alcoa Building, Pittsburgh 19, Pa., or call your nearest Alcoa Distributor.



Your Guide to the Best
in Aluminum Value

For Exciting Drama Watch
"Alcoa Theatre," Alternate
Mondays, NBC-TV, and
"Alcoa Presents," Every
Tuesday, ABC-TV

Aluminum Company of America
1685-D Alcoa Building, Pittsburgh 19, Pa.

I'd like to see how Alcoa Abrasive Tread Plate prevents slipping.
Please send me FREE sample—also application, design and fabricating data.

Name _____
Title _____
Address _____
City _____ State _____

Circle Item No. 53—Reader Service Card

Summary. To conclude our discussion of power sweepers, we have prepared a list of items to be checked in considering the employment of power sweepers. This list does not contain all items that should be examined but will serve as a guide and can be added to and adapted to fit your own individual cleaning problem.

1. Type of floor surface to be cleaned.
2. Amount of soil accumulation.
3. Type of soil encountered.
4. Manpower and dollar saving potential.
5. Frequency of sweeper use.
6. Required sweeper maintenance.
7. *Wet or dry* sweeping methods.
8. Dust control through vacuum units, and types of filters.
9. Types of vacuum units on the sweepers.
10. Gasoline, battery or liquid petroleum.
11. Gas powered.
12. Composition of sweeping brushes.
13. Hopper capacity.
14. Method of soil pickup and conveyance to hopper.
15. Manual or mechanical emptying of hoppers.
16. Ease of operation, including maneuverability.
17. Protection of mechanical parts of sweeper from soil and dust.
18. Evaluation of results from sweeper demonstrations.

Faster Than Sound

—From page 21

Firing Cycle. To understand precautions followed in the process, a brief description of the cycle is necessary. The detonation is carried on in a water-cooled gun called the *flame-plater*. The gun has a long barrel with a 1-in. bore. Metered amounts of oxygen and acetylene are admitted to the gun barrel by cam-operated valves. Simultaneously, a precisely controlled amount of tungsten carbide (or aluminum oxide) powder, suspended in a stream of nitrogen, is admitted to the barrel and mixes with the oxygen and acetylene.

When the barrel is filled with oxygen and acetylene and powder mixture, the flow of these materials is automatically stopped. At this point another cam-operated valve opens and admits sufficient nitrogen

to the flame-plating gun to protect all of the valves (which are upstream) from the effects of the detonation.

The oxygen and acetylene carrying the powder mixture is then detonated by a spark at the breech of the barrel. This reaction gives heat and kinetic energy to the powder particles which emerge from the gun and strike the parts being flame-plated. The nitrogen continues to flow for a short time, purging the spent gases from the barrel. This prepares the gun for the introduction of another charge of acetylene, oxygen, and powder. The cycle is repeated at a frequency of 4.3 cps.

Cubicle Construction. Flame-plating guns are located in cubicles about 15 x 15 ft. square with an 8-ft. ceiling. Each cubicle contains one flame-plating gun and a traverse mechanism to move the parts being plated in front of the high-velocity powder stream emerging from the barrel. The cubicles are double-walled rooms, each wall being made of 8-in.-thick solid concrete blocks resting on separate concrete footings. Between the double walls and roof is an 8-in. air space.

Each cubicle has a double door, with the inner door hung from the inside wall and opening inward. The other door is hung on the outer wall and opens outward. When flame-plating is under way, both heavy doors are tightly closed. The noise of the process is so contained that the sound level outside is approximately that of an average factory.

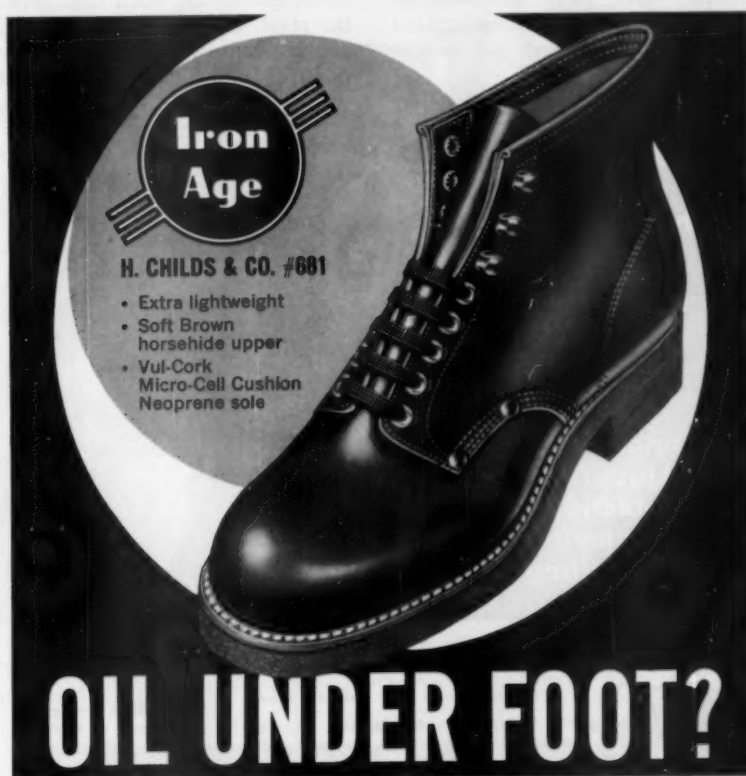
Flame-plating operators observe the process through a 3x2-ft. observation window. The window assembly consists of three sheets of plate glass on the inner wall and three on the outer wall. From outer to inner glass panels, the thicknesses are 1¼, ¾, ½, ½, ¾ and 1½ in. The variations in thicknesses prevent resonances that would occur with uniform sections.

Major Safety Measures. Ventilation of the cubicles is one of the most important safety measures. The ventilation system is designed to maintain the acetylene-air ratio below the explosive limit. Firing stops if the ventilation drops below a minimum. When the acetylene supply is not connected to the gun, it is connected to an outlet that vents to the atmosphere.

The outer door may be opened when plating is proceeding, but the process stops if the inner door is opened. The gun is *armed* by the operator inside the cubicle before firing is started. After pushing the arming button, he has nine seconds to leave the cubicle and close both doors. If for any reason he wishes to *unarm* before leaving the cubicle, he can pull any one of four handles suspended from the ceiling; this will reverse the arming button. If he

doesn't close the doors of the cubicle in less than nine seconds, the machine automatically unarms.

Assuming the operator leaves the cubicle, closes both doors and takes his position at the control panel and the machine remains armed, the firing cycle starts when the operator pushes the start button. The early flame-plating guns required the operator to push separate buttons to start flows of the separate gases. In the new machines this sequence is



Iron Age

H. CHILDS & CO. #881

- Extra lightweight
- Soft Brown horsehide upper
- Vul-Cork Micro-Cell Cushion Neoprene sole

OIL UNDER FOOT?

This Iron Age work shoe is made for safe footing on oil, grease, caustics, acids . . . the sole is Vul-Cork Neoprene.

Why? Because Vul-Cork Neoprene has the slip-resistant and corrosion-resistant properties so necessary for the shoes of men who work with chemicals and oils. For comfortable as well as safe footing . . . demand work shoes with Vul-Cork Neoprene soles.

Vul-Cork Sole Division, Cambridge Rubber Company, Taneytown, Md. Makers of **Vul-Cork**

VUL-CORK & VUL-CORK NEOPRENE

... so light, so flexible, so resilient, you can roll them up . . . right in the palm of your hand



automatically handled as the operator presses one button.

If the gun-cooling water pressure drops below a minimum, a warning signal is sounded. Another signal is given if the system nitrogen pressure falls below a minimum. There are several other safety features built into the systems, but these are the principal features.

After every 50 hours of operating time, the guns and related equipment are removed from the cubicles, completely disassembled, and overhauled in the maintenance shops. Worn parts are removed. The guns and gas and powder feed parts are reassembled and meticulously tested for leaks.

When the gun is assembled with the rest of the unit inside the cubicle, the operator is required to purge all passages with nitrogen before firing starts. Before a gun is disassembled or shut down at the end of a shift, the operator is required to purge all passages with nitrogen gas.

In piping locations in the system where there is any possibility of the ignition of a gas by an electric spark, all valves are air-actuated.

Flame-plating operators must be high school graduates or better. Safety glasses are worn throughout the plant, as the coating tends to pop off fixtures when it builds up to 1/8 in. or more. Smoking is not

permitted inside the cubicle but is permissible in the rest of the plant.

The Linde Company Flame-Plating plant in Speedway, Ind., has a battery of cubicles. Another plant is located at Los Angeles, and the process is used under license in a plant in England. When you consider that the plants in the United States employ 30 operators who must constantly follow every phase of safety in an essentially dangerous process, our accident-free record has been highly gratifying.

Personals

—From page 44

Application Engineering at Sandia Corporation, Albuquerque, N.M. In 1957 he was appointed to his present government position. He is the 1957 recipient of the ASA's Standards Medal—yearly award for leadership in the practical development and application of standards.

Three directors of the ASA board were re-elected. They are: E. R. JOHNSON, vice-president—operations, Republic Steel Corporation; W. J. SWEENEY, vice-president, Esso Research and Engineering Company; and A. E. PRINGLE II, vice-president, The Pringle Electrical Manufacturing Company.

OBITUARIES

F. J. HILLGRUBER

FRED J. HILLGRUBER, for the past 11 years safety director for the National Cash Register Company, Dayton, Ohio, died January 10. He was 56 years old.

Starting as an apprentice in the model-making department of NCR 39 years ago, Mr. Hillgruber became an instructor in the company's education department in 1941. Six years later he was appointed safety director.

Mr. Hillgruber was known nationally and locally in the safety field. He was chairman of the Off-the-Job Safety Committee of the National Safety Council, vice-president for industry of the Ohio State Safety Council, and a member of the Industrial Safety Commission of the Dayton Safety Council.

JAMES W. LOOPER, a member of

**These Flexible
Coated
PIONEER
Gloves**

Provide
Long Wearing
Liquidtight
Protection For
Materials
Handling



Neoprene Coated Flannel Stanzoil Pacemakers

Length	Style	Weight	Model
10"	Knit wrist	Light	80
10"	Knit wrist	Industrial	90
10"	Knit wrist	Heavy Duty	95
10"	Gauntlet	Industrial	100
10"	Gauntlet	Heavy Duty	105
12"	Gauntlet	Industrial	120
12"	Gauntlet	Heavy Duty	125
14 1/2"	Gauntlet	Industrial	140
14 1/2"	Gauntlet	Heavy Duty	145
18"	Gauntlet	Industrial	180
12"	Gauntlet	Twin lined*	225

* No. 225 designed to protect hands from extreme hot and cold temperatures.

Pylox™ Coated Jersey Stanflex

Model	Style	Size	Length
5042	Knit wrist	Men's	10"
5052	Knit wrist	Women's	10"
5232	Band top	Men's	11"
5132	Gauntlet	Men's	12"
5252	Gauntlet	Men's	14 1/2"

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the NCR educational training department, succeeds Mr. Hillgruber as safety director.

A native of Statesville, N. C., he started with NCR in 1931 as a messenger and served successively in several departments of the assembly division before joining the educational-training department as an instructor in 1947. Two years later he was named a section head in the department and served in that capacity until his appointment as safety director.

DR. FREDERICK WILLSON

DR. FREDERICK WILLSON, 90, retired industrialist and civic leader, died February 15 in Community General Hospital, Reading, Pa. Born in Reading, he was a son of Thomas A. Willson, one of the founders of T. A. Willson & Co., forerunner of Willson Products, Inc., manufacturers of safety equipment.

After graduation from the University of Pennsylvania with a degree in medicine, Dr. Willson practiced in Philadelphia for two years before joining his father's firm in Reading.

He became president and general manager of the company after its incorporation in 1910. Later the firm's name was changed to Willson Products, Inc. Ray-O-Vac Company purchased Willson Products, Inc., in 1955.

First president of the Optical Manufacturers Association of Providence, R.I., Dr. Willson had been honored by the British Society of Safety Engineers for achievements in the field of personal safety.

ALEX SPINK

ALEX SPINK, 63, director of safety for the Kingan Division, Hygrade Food Products Corp., Indianapolis, died in mid-February after suffering a heart attack.

A former general chairman of the NSC Meat Packing, Tanning and Leather Products Section, Mr. Spink was chairman of the section's engineering committee and a member of the section's executive committee at the time of his death.

He also was a member of the American Meat Institute safety advisory committee. Born and educated in Scotland, Mr. Spink joined

Kingan on coming to the United States in 1923. He later became master mechanic and was appointed division head of mechanical services in 1950. He was named director of safety the same year.

HANS JERGEN HAGGE

HANS JERGEN HAGGE, pioneer in the field of workmen's compensation insurance almost from the day the first state compensation law was recognized as legally constitu-

tional in 1911, died in Wausau, Wis., January 6. He was 72 years old.

Chairman of the board of Employers Mutuals of Wausau, Mr. Hagge started his business career in Iowa banking institutions. He then established his own court-reporting firm in Chicago and in 1911 joined Employers Mutuals.

He was the company's fourth employee and served as assistant sec-

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retary. He became secretary in 1912, secretary and general manager in 1914, vice-president in 1925 and president in 1931. He was elected chairman of the board in 1952.

Mr. Hagge's pioneering philosophy contributed to his company's early leadership in industrial accident prevention work, industrial nursing services, employee rehabilitation, and more recently such specialized services as industrial hearing conservation and industrial atomic energy safety.

Among the numerous positions held with insurance associations, he was elected president of the National Association of Mutual Casualty Companies and vice-president of the American Alliance Mutual Alliance in 1952.

Safety Library

—From page 84

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Health Programs

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The Edison Electric Institute Bulletin, 750 Third Ave., New York 17.

Engineering News-Record, 330 W. 42nd St., New York 36.

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Fire Engineering, 305 E. 45th St., New York 17.

Industrial and Engineering Chemistry, 1155 Sixteenth St., N. W., Washington 6, D. C.

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The Modern Hospital, 919 N. Michigan Ave., Chicago 11.

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Sentinel, 85 Woodland St., Hartford 2, Conn.

Space/Aeronautics, 205 East 42nd St., New York 17.

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104

Oxygen

—From page 46

Devices of this type have advantages as well as disadvantages. One major advantage is that high oxygen concentrations can be administered; disadvantages, on the other hand, may include rebreathing accumulations of carbon dioxide and the resistance to flow of air within the mask.

Oxygen can be administered in concentrations ranging from 40 to 100 per cent, and the masks are especially useful in providing oxygen concentrations ranging from 70 to 100 per cent. It should be noted, however, that high concentrations of oxygen in the inspired air can only be achieved if high oxygen flow-rates to the mask are employed.

Rebreathing of carbon dioxide accumulations occurs as follows: When the victim on whom the mask is applied exhales, part of the breath flows into the rebreathing bag and remains there. When the victim again inhales the contents of the bag, the carbon dioxide just exhaled will once more be inhaled. This process will then repeat itself.

In this way, it is possible for the victim to breathe air containing accumulated carbon dioxide concentrations of 2 per cent or more. As a result, these high carbon dioxide concentrations may increase respiratory rates around 40 per cent to 50 per cent and thereby increase the victim's dyspnea. This is particularly objectionable in cardio-respiratory patients. High oxygen flow-rates (8 to 10 liters per minute) must be used to keep carbon dioxide "washed out" of the bag.

Resistance to gas flow encountered within the mask is usually not a great problem during exhalation. However, in cases of obstructive apnea, the victim already suffers from severely belabored breathing, and the additional burden posed by the mask is objectionable.

It is the resistance encountered during inspiration which is most often of considerable concern. During inspiration the victim is required to suck air from the rebreathing bag and through the orifices in the mask. In some cases these orifices consist of sponge rubber disks; in other cases they are simple perforations.

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National Safety News, April, 1959

The resulting negative pressure within the mask is of little significance during quiet breathing.

However, the negative pressure becomes a serious problem in subjects who are suffering from dyspnea or whose respiration is markedly increased. In these cases a negative pressure of 1 to 2 cc water column during inspiration exerts a suction force on the respiratory epithelium; and breathing against a negative pressure has been shown in the laboratory to be cause for edema of the lungs.⁹

Therefore, resistance to inspiration should at all times be avoided, especially in subjects suffering from obstructive dyspnea, heart failure, or in any patient in whom a tendency toward edema of the lungs might develop. All of these statements support the contention that low flows of oxygen should *not* be used with this type of face mask.

2. The so-called "meter mask," is another face mask which does not allow the subject to rebreathe any part of the exhaled air. When the subject exhales, the breath escapes through a valve to the outside, and consequently the concentration of carbon dioxide in the subject's breath—while using this mask—does not rise above 0.2 per cent even with oxygen flow-rates as low as two liters per minute.⁶ Air consisting of 95 per cent oxygen can be supplied with flow-rates of eight liters of oxygen per minute. Air consisting of approximately 40 per cent oxygen can be supplied at flow-rates of two to three liters per minute.

In a non-dyspneic adult, a flow-rate of four liters of oxygen per minute can provide a supply of air consisting of 50 per cent oxygen. However, in the dyspneic subject higher flow-rates must be used in order to supply an equivalent percentage of oxygen in the inspired air. To obtain higher oxygen concentrations in inspired air by the mask method, oxygen flow-rates in the order of 10 to 12 liters per minute must be supplied.

For these reasons it is well that such devices have a gauge indicating the rate of flow to meet the patient's needs. Or the device must deliver maximum oxygen flow-rates at all times. In this way the operator can be certain that adequate concentra-

tions of oxygen are provided. Tank capacity should be at least 300 liters or greater ("D" tank) in order to provide at least half an hour's continuous supply of oxygen.

3. The nasal catheter is inserted into the naso-pharynx and is one of the easiest and most efficient means of administering oxygen.⁵ For instance, with an oxygen flow-rate of 6 liters per minute and adequate breathing, concentrations of 40 to

45 per cent oxygen can be obtained in the inspired air.

Care must be exercised in placing the catheter properly. If the catheter reaches too far into the pharynx, the victim may be gagged or air may be forced into the stomach. If, on the other hand, the catheter does not reach far enough, the proper concentrations of oxygen may not be obtained. One method of estimating the proper distance of in-

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section is to measure from the tip of the nose to the front of the ear and then add one-quarter inch. This length is then inserted and the catheter is taped to the face.

This method of administering oxygen is particularly useful for several reasons. There is no mask to restrict the free exchange of air by the subject, and consequently there is little or no interference with elimination of carbon dioxide. The attending person does not have to pay attention to a mask and is free to attend to the patient's other needs.

Furthermore, the catheter can readily be inserted into the non-breathing victim. This frees the rescuer to administer artificial respiration by either the mouth-to-mouth or back-pressure arm-lift method. And since asphyxia and apnea are indications for using either of these methods, the administration of added oxygen will have a useful purpose.

Conclusions. Whenever impaired oxygenation is suspected or can subsequently be expected, attention must primarily be directed at maintaining adequate respiration, a sufficiently large supply of oxygen, and the elimination of carbon dioxide.

In an emergency, the oxygen of ordinary air can always be relied upon. Attention must primarily be given to maintaining adequate pulmonary ventilation. This can be achieved by urging the victim to greater breathing efforts, by manual or mouth-to-mouth artificial respiration, or by use of a resuscitator as indicated by the victim's breathing status.

Air ranging in oxygen concentration from 40 to 50 per cent can readily be applied, inhaled, and maintained by nasal catheter. Apparatus utilizing the mask and re-breathing bag can provide safe inhalation of higher oxygen concentrations, provided the mask is properly placed and high oxygen flow-rates are maintained.

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Chemical Booby Traps

—From page 23

or burn should be kept at a minimum.

Peroxides. Benzoyl peroxide is one of several organic peroxides and hydroperoxides which have been the cause of serious fires and explosions in the past—often for reasons which were not obvious. For a comprehensive discussion of the hazards of peroxides, see *Fire and Explosion Hazards of Organic Peroxides*, NBFU Research Report No. 11, 1956, available from the National Board of Fire Underwriters.

Chemox self-generating oxygen breathing apparatus employs potassium superoxide in the canister as a source of oxygen. Precautions to be followed with Chemox canisters are:

1. Packing of the chemical, on long storage in a vertical position (all gas mask canisters—whether Chemox, industrial, or universal type N—should be stored in a horizontal position to avoid packing of the contents, which results in increased breathing resistance).
2. Once a Chemox canister is opened and put into operation, it continues to evolve oxygen from moisture in the air and becomes exhausted, even if recovered. Strict rules should be established to prevent re-use.
3. Instructions for disposal, plainly printed on each Chemox canister, should be followed. To allow gasoline, oils, or other combustibles to enter the canister is to risk explosion. Our experience indicates that not every canister explodes, even when gasoline is deliberately introduced. On the other hand, Chemox canisters immersed in heavy motor oil exploded in 20 to 30 minutes after immersion.

Sodium. The classical explanation for the reaction between sodium

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and water to produce hydrogen and sodium hydroxide is that the sodium melts (97.5 C), spins about on the surface, hisses and sputters with such violence that it bursts into flame. By changing conditions and concentrations, it is possible to achieve a relatively mild reaction, with no explosion, on up to a vigorous explosion.

One factor frequently overlooked is that relatively clean sodium from a freshly cut surface will yield only

hydrogen as a gas, but dirty or old sodium will produce oxygen (from sodium oxide reacting with the water) plus hydrogen. If conditions are right, detonating mixtures of hydrogen-oxygen may be produced.

Although the reaction of sodium-plus-water sounds simple and is part of every high school chemistry course, we consider it extremely unpredictable and we would not recommend it for schools or as a lecture demonstration.

On the other hand, if one is faced with destroying a large quantity (several thousand pounds) of sodium which is unfit for utilization in chemical processes, disposal in a large quantity of water may be considered. If the sodium can be sealed in water-tight steel tanks (such as used for oil storage), the tanks opened by a delayed explosive charge after they have floated away from the ship, and this operation carried out under Coast Guard and Navy supervision 150 to 200 miles at sea, the resulting fires, explosions and "fall-out" cloud of sodium hydroxide smoke may be safely controlled.

To attempt such an operation on land, such as dropping one 250-lb. piece of sodium into a quarry, may cause difficulty, especially if the wind changes, and carries the fall-out over a populated area. In a recent incident, 20 persons received skin burns, 42 persons reported property damage, and the finish on 173 automobiles was reported damaged—all because of an unexpected wind shift.

Sodium chlorate, widely used as a weed-killer, has resulted in some spectacular fires, since it is a very powerful oxidizing agent. Mississippi Aeronautics Commission described the destruction of several cloth-covered airplanes which had been used to spray water solutions of sodium chlorate. In some cases, the planes, sitting on the ground while the pilots had walked away, ignited and burned completely in seconds. In other cases, planes ignited in hangars where "chill-chaser" heaters were being used.

The extremely high rate of burning (as well as the ease with which ignition can occur) makes it mandatory that any clothing or other object splashed with solutions of this chemical be thoroughly and completely washed with water to remove the chlorate.

Normally, paper burns slowly and leaves an ash nearly as large in volume as the paper. If paper is splashed or soaked in sodium nitrate, in sodium chlorate, or in mixed nitric-sulfuric acids, the dried product will burn with much greater speed, and leave little or no ash. Such treated paper is easily ignited by a cigaret.

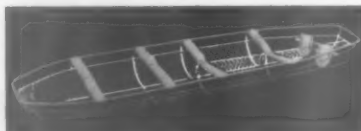
Circle Item No. 70—Reader Service Card



Convenient, Clean, Accessible! **Junkin** STRETCHER CASE & KIT

Junkin Stretcher cases provide a compact convenient place for storing the army type stretcher, blanket and first aid equipment. Protects from dirt and grime — saves valuable space. Available as kit or case only.

JUNKIN
SPLINT-
TYPE
STRETCHER



Rigid construction. Patients may be carried vertically or horizontally, greatly reducing danger of moving from inaccessible locations. Canvas web-straps at chest, abdomen, thigh and calf, hold patient securely.

Send for descriptive literature.

Canadian Distributor: Lavitt Safety Ltd., Toronto



JUNKIN SAFETY APPLIANCES
3121 Millers Lane, Louisville 16, Ky.



B&L TABS

BOWL CLEANER

GERMICIDE

Kills "Staph" in Seconds



POWERFUL
BUT SAFE

end acid accidents
redi-measured

SAVES PENNIES ON EVERY CLEANING

Distributors in 60 cities

Horizon industries 400 UPPER MIDWEST BLDG., MINNEAPOLIS 1, MINN.

Circle Item No. 71—Reader Service Card

Torches. Whenever oxygen-fuel torches (such as hydrogen-oxygen, acetylene-oxygen, or gas-oxygen) are used, care must be taken to insure that the hoses are secure and that the torch does not accidentally ignite the hoses. If the fuel hose is ignited while the gas is still on at the source, a nasty fire will result, but it may not be as difficult to control as a fire in the oxygen hose.

Such a fire may start small, but quickly reach the dimensions and intensity of a flame-thrower, and evolve copious amounts of sooty smoke and tars. If the only cut-off valve for such gases is in a cock at the rear of the hood or the bench, damage to equipment and injury to personnel may be expected.

The simple precautions—of properly securing and frequently replacing rubber tubing used for gases, of turning off all torches *both* at the cock as well as at the torch, hanging up the torch when not in use, and having an easily reached remote shut-off valve for gases and other services—will prevent incidents of this type.

Nitric acid is the most unstable of the commonly used mineral acids, and it decomposes with heat, with sunlight, and with most metals (except gold and platinum) to evolve the oxides of nitrogen. Nitrogen pentoxide, which is the anhydride, decomposes and dissociates into oxygen and nitrogen dioxide. What happens next is academic; both the acid and the higher oxides of nitrogen are highly toxic to breathe.

When sawdust is thrown on nitric acid spills, or when an iron or galvanized bucket is used to carry nitric acid, the fumes, which may range in color from yellow, through red and brown to nearly black, are evolved. They are not especially unpleasant to smell, but must be avoided since these fumes seriously damage the alveoli of the lungs. Some time after exposure (frequently up to 18 hours), these delayed-action fumes may produce pulmonary edema, with results which have been fatal in many cases.

Use of approved breathing apparatus is mandatory if nitric fumes are encountered. If exposure does occur, the injured should be immobilized as promptly as possible and oxygen administration begun under close medical supervision. Recovery

or death will usually occur within 48 hours.

Incidentally, it has recently been established that silo-filler's disease, which killed numerous men who descended into silos for inspections or to remove feed for cattle, is caused by the oxides of nitrogen. It is produced by the fermentation of silage.

Calcium hypochlorite is a white crystalline substance which contains 70 per cent available chlorine. Its

main use is in laundry and textile bleach, and it is also a germicide and a deodorant. Because it is an oxidizing substance, it should be carefully handled so contamination with other substances does not occur.

In a recent incident, calcium hypochlorite had been weighed out into a paper bag and the closed bag set aside. The methyl carbitol (monomethyl ether of diethylene glycol) which had splashed against the bag from a previous operation,

Circle Item No. 72—Reader Service Card



KLEAR-VU SAFETY MIRRORS are the answer to the dangerous blind corner problem in your plant or warehouse. They are also adaptable for outdoor use in your parking lot, loading dock area or other points where traffic converges.

Mounted at cross aisle intersections, entrances and exits at a height of 8 to 10 feet, Klear-Vu Safety Mirrors clearly reflect oncoming intersection traffic to both power truck operators and pedestrians.

Style	No.	Dimensions
Circular Convex Glass	120	12" dia.
Circular Convex Glass	180	18" dia.
Circular Convex Glass	240	24" dia.
Circular Convex Glass	300M.R.	30" dia.
Circular Convex Glass	360M.R.	36" dia.
Flat Glass Rectangular	918	9"x18"
Flat Glass Rectangular	1640	16"x24"

M.R. Indicates metal rim.

Special sizes made to order, Polished flat metal mirrors available.

LESTER L. BROSSARD CO.

540 N. MICHIGAN AVE., CHICAGO 11, ILL.

Write for
Bulletin.

"VEKI" SAFETY CAP

Designed for
GREATEST INDUSTRIAL SAFETY

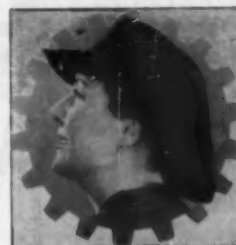
VEKI's larger, roomier, elastic-type snood is designed specifically for enclosing more hair than any conventional type cap. . . full protection for all hair all the time! Front of twill. Back is made of mesh—can also be had in solid or flame-proof materials. Navy blue, and brown. Adjusts to all head sizes. Descriptive literature on request.

Manufacturers and distributors of a complete line of safety clothing and equipment. Write Dept. N-4 for information regarding your needs.



KENNEDY-INGALLS, INC.

3735 NORTH 35TH ST., MILWAUKEE 16, WISCONSIN



reacted after several minutes, and evolved sufficient heat to ignite. We have found that a few drops of methyl carbitol added to dry hypochlorite will react in from 2 to 10 minutes to evolve highly irritating (chlorine-containing) smoke, and fire.

Glycerol, also phenol and several other commonly used chemicals, will react with calcium hypochlorite more quickly. The smoke from the phenol-calcium hypochlorite reaction is especially penetrating and

objectionable, since it contains some chlorophenol. The interesting point about these reactions is that calcium hypochlorite is usually considered a very mild oxidant.

The above reactions form a small sample of the hundreds of hazardous chemical reactions which have already been reported.

The ranch-type house did away with the unsightly clutter in the attic and basement. Now it's in the garage.

Calendar Contest Winners For January



John A. Stewart, director of student affairs, Case Tech, Cleveland, Ohio, won the \$100 first prize in the National Safety Council's "Safety Saying" contest with this line:

You're all turned around, aren't you, Joe?

The contest appears monthly on the back pages of the Council's calendar. The theme for the January contest was "Winter Driving."

Second prize of \$50 went to Mrs. D. W. Manley, Jr., Vermont Electric Co-op, Johnson, Vt. Her entry was:

'Cause Skidders leave 'Widders' and Woe!

Mrs. J. R. Read of Port Arthur, Texas, won third prize of \$25 for this line:

He's a GAsser, but real DEADdy-O!

The 30 winners of \$5 prizes are:

Leland R. Stordahl, Erie Mining Co., Hoyt Lakes, Minn.

Miss Barbara J. Berry, Southern California Gas Co., Los Angeles.

Byron Rice, Standard Oil Co. (Ind.), Whiting, Ind.

W. H. Conlee, Wisconsin Telephone Co., Milwaukee, Wis.

Mrs. Frank Malcor (Individual Member), Springfield, Ill.

Miss Mary Grunland, University of California, Berkeley, Calif.

Mrs. Roger G. Haglund (Individual Member), Isle, Minn.

Bufo F. Heidbrink, Socony Mobil Oil Co., Denver, Colo.

Mrs. Henry Neill, Washington Township Hospital, Fremont, Calif.

N. E. Rider, Mountain States Telephone and Telegraph Co., Phoenix, Ariz.

James E. Goetz, Todd Shipyards Corp., New Orleans, La.

Mrs. R. C. Blalock, Henry County Livestock Association, Inc., Abbeville, Ala.

Mrs. D. L. Eldridge, Pantex Ordnance, Amarillo, Texas.

Mrs. Georgia M. Caywood, Phelps Dodge Corporation, Morenci, Ariz.

Circle Item No. 74—Reader Service Card

SAFETY EQUIPMENT FOR ALL INDUSTRIES

PROTECTION for

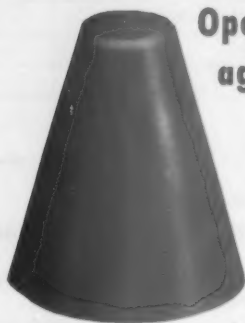
Operating Personnel

against

Corrosive Liquids!

CHEX-SPRAY

Valve Shields



APPLICATION



COVERS VALVE STEM PACKING GLAND — A new product for all industries where corrosive liquids are carried by pipe lines. Easily installed. Manufactured of specially compounded neoprene synthetic rubber for inside or outside installation. Made in 4 sizes for use on 3/4" to 6" valves.

WRITE FOR BULLETIN NO. 80



Safety Equipment for all Industries

INDUSTRIAL PRODUCTS COMPANY

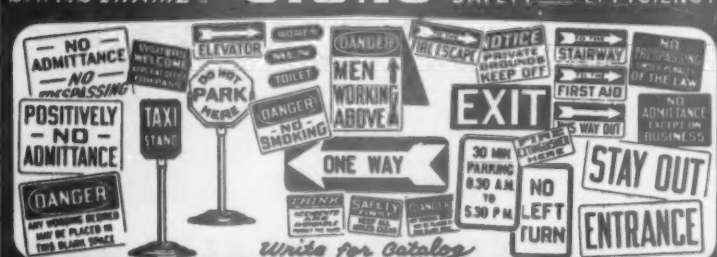
2850 N. Fourth Street

Philadelphia 33, Pa.

Weatherite
BAKED ENAMEL

SIGNS

STANDARD REGULATION
SIGNS OF ALL KINDS FOR
SAFETY AND EFFICIENCY



PRAIRIE STATE PRODUCTS CO. 3822 LAWRENCE AVE.
CHICAGO 25, ILL.

Circle Item No. 75—Reader Service Card

Miss Minnie Maze, Henry & Hard-
esty, Inc., Fairmont, W. Va.

D. E. Crampton, Visking Company,
Winnipeg, Man., Canada.

Junell Haaisto, Oliver Iron Mining
Div., United States Steel Corp., Du-
luth, Minn.

Glen A. Smith, United States Gyp-
sum Co., Genoa, Ohio.

Mrs. Mary Cashman (Individual
Member), Amherst, Mass.

Martin Hoyt, Jr., Borden Co., Me-
nands, N. Y.

Miss Dorothy Rushton (Individual
Member), Long Beach, Calif.

Mrs. Thomas Cooper, Warner Com-
pany, Philadelphia.

Bobby, Grade 4, River Philip
School, River Philip, Nova Scotia,
Canada.

R. S. Melville, Southern California
Edison Co., Santa Ana, Calif.

Mrs. Norris Turnbull (Individual
Member), Holcomb, N. Y.

Geo. K. Puukila, Bell Telephone
Co. of Canada, Fort William, Ont.,
Canada.

Richard M. Finaldi, Hoffman La-
Roche, Inc., Nutley, N. J.

N. Smalley, Celotex Company,
Pittston, Pa.

Mrs. Gladys Dickie, Balco Forest
Products, Inc., Heffley Creek, B. C.,
Canada.

Michael Berezna, The Texas Co.,
Westville, N. J.

Announce Conference On Campus Safety

Experts in major areas of con-
cern in college safety will take part
in the Sixth National Conference on
Campus Safety to be held at Michi-
gan State University's Kellogg Cen-
ter at East Lansing, April 27-29.
The conference is co-sponsored by
the University and the National
Safety Council's Campus Safety As-
sociation.

The increasing problems of fire
protection, traffic control, student
mass behavior, and other timely
topics will be reviewed in the three-
day meeting, which will also pro-
vide an opportunity to see safety
programs in action, and to gain an
insight into the workings of the Uni-
versity's Traffic Safety Center.

Placement of safety responsibility
in the college structure will be the
basis of the keynote speech by Dr.
Lowell B. Fisher, president of the
North Central Association of Col-
leges and Secondary Schools, and
vice-chairman of the National Safe-
ty Council's Board of Directors.



Employee Booklets

EMPLOYEE education booklets are a basic part of your safety program. The National Safety Council publishes a wide variety of such booklets which can help shape sound safety attitudes or instruct your employees in the safe practices related to their work or off-the-job activities. Sample copies of recent booklets are available by circling the key number of the ones you want on the Reader Service Card at the back of this issue.

● WHAT TO DO ABOUT HOME INJURIES

A valuable reference book covering the prevention and emergency treatment of most home injuries. A must for every home. Easy to read, illustrated, the booklet is approved by the American Medical Association and the American National Red Cross. Stock No. 599.64. Thirty six pages, 5½" x 8½", two-color illustrations. **Circle No. 504—Reader Service Card.**

● GETTING ON—SAFELY

A booklet for older people. It points out many special accident hazards for the aged and suggests ways to avoid them. Suitable for off-the-job, pre-retirement or retirement programs, it is attractively printed and illustrated. Stock No. 599.72. Twelve pages, 3¾" x 8", full color illustrations. **Circle No. 505—Reader Service Card.**

● DON'T BE ALARMED

A humorous booklet with a serious message—Fire Prevention! Covers all phases of successful fire prevention and points out to employees that the main causes of fires are carelessness and lack of knowledge. Stock No. 195.80. Sixteen pages, 3¾" x 8", two-color illustrations. **Circle No. 506—Reader Service Card.**

● SAFE AT HOME

A booklet that asks "How Safe is Your Home?" Explains how to make any home safer, covering virtually every aspect of family safety. An up-dated edition of an older, highly popular Council booklet. Illustrated with photographs. Stock No. 599.61. Sixteen pages, 3¾" x 8", printed in two colors. **Circle No. 507—Reader Service Card.**

● EASY DOES IT

A long needed booklet covering all phases of safety in materials handling. Profusely illustrated with cartoons, the booklet gives helpful suggestions on safe use of hand trucks, power trucks, cranes, and manual material handling. Stock No. 195.70. Sixteen pages, 3¾" x 8", two-color illustrations. **Circle No. 508—Reader Service Card.**

● THE PROFESSIONAL TOUCH

"Professional drivers are made—not born!" and this booklet shows how the average driver can acquire the techniques used by the "pros" to avoid accidents. A valuable booklet both for commercial drivers and passenger car drivers of all ages. Amusing illustrations. Stock No. 294.08. Twelve pages, 3¾" x 8", printed in two colors. **Circle No. 509—Reader Service Card.**

● ARE YOU SAFETY MINDED?

An amusing "rogue's gallery" of cartoon characters representing "types" of unsafe workers. An effective way to reach employees having the same attitudes and ways to help change them. Stock No. 192.15. Sixteen pages, 3¾" x 8", full color illustrations. **Circle No. 510—Reader Service Card.**

For information on other Council employee training publications write to National Safety Council, 425 N. Michigan Ave., Chicago 11.

For a More Successful Poster Program



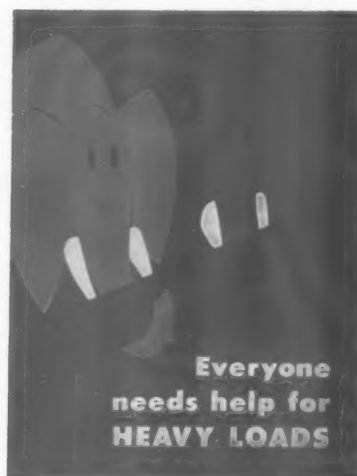
JUMBO POSTER FOR JUNE 1959

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

SAFETY BANNER FOR JUNE, 1959

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-color design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill with wind vents, and has strong stitched-in rope for durability.

POSTERS illustrated on the following pages are new, and actually are printed in two or more colors. NOTE: (1) The new 1959 poster directory is also available—with a wide variety of subjects. Stock of those directory-listed posters will be available at least until October 1, 1959. (2) Most posters appearing in NATIONAL SAFETY NEWS in 1959 will be stocked throughout the year.



NATIONAL SAFETY COUNCIL

1602-A

8 1/2 x 11 1/2

This new four color poster is illustrative of the 72 four color posters shown in the 1959 Poster Directory.

WATCH OUT FOR OTHERS



NATIONAL SAFETY COUNCIL

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors
(Available only in sizes indicated)



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© NATIONAL SAFETY COUNCIL
1538-A 8 1/2 x 11 1/2



PRINTED IN U.S.A.
© NATIONAL SAFETY COUNCIL
1611-B 17 x 23



PRINTED IN U.S.A.
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1411-A 8 1/2 x 11 1/2



PRINTED IN U.S.A.
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1603-B 17 x 23



PRINTED IN U.S.A.
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1590-A 8 1/2 x 11 1/2



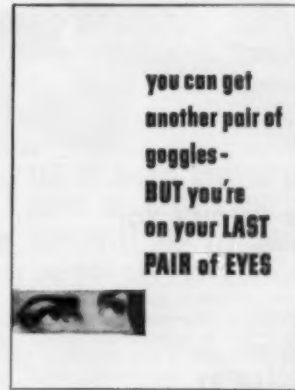
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1591-A 8 1/2 x 11 1/2



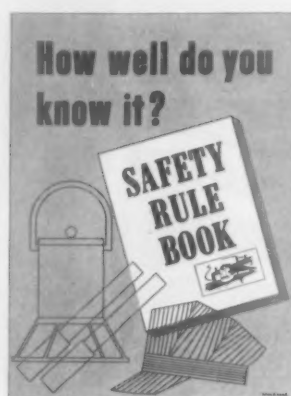
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1553-B 17 x 23

Electrotypes can be furnished for all posters illustrated above.

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1416-A 8½x11½



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1625-B 17x23



PRINTED IN U.S.A.
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T-1580-C 25x38
T-1581-A 8½x11½



PRINTED IN U.S.A.
© NATIONAL SAFETY COUNCIL
V-1583-B 17x23



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V-1584-A 8½x11½



PRINTED IN U.S.A.
© NATIONAL SAFETY COUNCIL
V-1585-A 8½x11½

POSTER ORDER FORM

SHIP TO:

Organization _____

Address _____

City _____ Zone _____ State _____

To attn. of _____

SEND INVOICE TO:

Organization _____

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City _____ Zone _____ State _____

To attn. of _____

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Customer's P.O. Number _____

PRICES EACH	"A" SIZE (ALL)	"B" SIZE (EXCEPT PREFIX T-)	"B" SIZE (PREFIXED WITH T-)	"C" SIZE
1-9	—	—	—	\$.40
10-99	\$.12	\$.23	\$.20	.30
100-999	.07	.195	.165	.24
1,000-4,999	.06	.185	.152	.22

Prices subject to 10% discount to members. With all orders of less than \$3.00 please enclose check or money order.

Quantity	Poster No.	Quantity	Poster No.

ADDRESS ORDER TO: NATIONAL SAFETY COUNCIL, 425 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS

Electrotypes can be furnished for all posters illustrated above.

WARNING LIGHTS!



**POWERFUL
REVOLVING
&
FLASHING TYPES**

**FOR
INDUSTRIAL USE
AND
EMERGENCY VEHICLES**

**PERMANENT
MOUNTING AND
DEMOUNTABLE TYPES**

**• ALSO
AUTOMATIC EMERGENCY
LIGHTS, PORTABLE
SEARCH & FLOODLIGHTS
AND SIRENS**



THE PORTABLE LIGHT CO., Inc.

216 WILLIAM STREET, NEW YORK 38, N. Y.

Write for FREE Literature—Dept. 70

THE POSITIVE LADDER SAFETY DEVICE LOCKS-IN-A-NOTCH



**Prevents death
and injuries
from falling.**

If climber starts to fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches — distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. 11 years. Approved by Safety Engineers and Govt. Agencies throughout country. Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd., P.O. Box 1052
BURBANK, CALIFORNIA

Circle Item No. 77—Reader Service Card

National Safety News, April, 1959

Off-the-Job

—From page 81

opening or openings. There should be a several-inch clearance between the tip of the blade and the end of the discharge opening or there should be a bar across the opening to prevent possible contact with the end of the blade.

Gasoline-powered mowers with recoil-type starters are relatively easy to start and minimize some hazards in starting.

Operating Precautions: The manufacturer's recommendations for operation and maintenance should be followed completely and should be considered standard operating procedure.

Before a mower is to be put into operation, the area to be cut should be cleared of all obstacles, such as rocks, stones, pieces of wire, sticks or other debris.

The mower should be set at the highest cutting point, when operated on rugged or uneven terrain, to prevent the mower from accumulating or ejecting excessive amounts of debris.

The cutting path should be kept clear of persons or animals. While the mower is in operation, only the operator should be allowed near it. A power mower should never be left running or unattended.

Under no circumstances should children, including young teenagers, be allowed to operate power mowers. Anyone planning to operate a power mower should be thoroughly instructed in operating procedures before being permitted to use it.

Even though a grounding arrangement has been provided, it is advisable not to use an electric-powered mower when it is raining, the grass is wet, or the mower is wet or damp.

The operator should not reach under the deck, the chain guards, or the belt guards of the mower until it is stopped and the power source disconnected.

The mower should be started on firm, clear, level ground. The operator should maintain a firm grip on the mower and should stand to one side when starting it.

—To page 124



Jack should have used

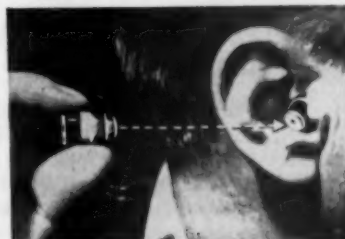
VYTHENE^{T.M.}



**"SMART
ALEC"
USES
VYTHENE
SAFETY
SOLVENT.
PERHAPS
YOU SHOULD
TOO!**

Send for
Free
Literature
and Sample
TECT, INC. Northvale, N. J.

Lee Sonic EAR-VALVS Eliminate the HARMFUL Effects of NOISE to The EAR DRUMS...



**A FREE 30 Second Demonstration
will PROVE this BEYOND QUESTION
We GUARANTEE THAT! Remember
they are NOT EAR PLUGS!**

They are scientifically developed sound controls that protect the ear drums without interfering with normal conversation or sound. We'll gladly send you a pair for actual demonstration. THEN you will find out why they are recommended and used wherever NOISE is a HAZARD and a deterrent to normal production. Send for your demonstration pair TODAY on company letterhead. No obligation to purchase.

SIGMA ENGINEERING COMPANY
1491 Vine St., Dept. F-3, Los Angeles 28, Calif.
Circle Item No. 79—Reader Service Card

"We've reduced our scrubbing time from 70 to 7 man-hours ... and our floors have never before been so clean!"

— says Foreman of
BURNY BROS. BAKERY, CHICAGO



Garage and stockroom floors in Burny Bros. large, modern bakery get daily scrubbing with a Job-Fitted Combination Scrubber-Vac and Setol Cleanser

THEY'RE an unbeatable team to speed the cleaning of oily, greasy floors. Here's why: A *Scrubber-Vac* completely mechanizes scrubbing. It applies the cleanser, scrubs, flushes if required, and picks up (damp-dries the floor) — all in one operation! Job-fitted to specific needs, a *Scrubber-Vac* provides the maximum brush coverage consistent with the area and arrangement of the floors. Its teammate, *Setol Cleanser*, is specially designed for the greater speed of combination-machine-scrubbing... emulsifies grimy oil and grease instantaneously for fast, thorough removal by the machine's powerful vac. Moreover, *Setol* retains its strength longer than average alkaline cleansers. This, too, speeds the cleaning process... saves on materials... and cuts operating time of the machine, which in turn reduces

labor costs. The *Scrubber-Vac* shown above is *Finnell's 213P*, for heavy duty scrubbing of large-area floors. It's self-propelled, and has a 26-inch brush spread. Cleans up to 8,750 sq. ft. per hour (and more in some cases), depending upon condition of the floors, congestion, et cetera. (The machine can be leased or purchased.) *Finnell* makes a full range of sizes, and self-powered as well as electric models... also a full line of fast-acting cleansers. In fact, *Finnell* makes everything for floor care! Find out what you would save with combination-machine-scrubbing. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or *Finnell System, Inc.*, 2204 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines



**BRANCHES
IN ALL
PRINCIPAL
CITIES**

New SAFETY EQUIPMENT

Product announcements in this section are reviewed for compliance with the advertising policy of the NATIONAL SAFETY NEWS. Inclusion should not, however, be construed as endorsement or approval by the National Safety Council.



Neoprene Gloves

An improved neoprene coating, reinforced with special additives gives "Neox" work gloves greater resistance to industrial solvents. The flexible glove is made in a new hand-fitting pattern with a wing thumb and curved, pre-flexed fingers

for maximum comfort and dexterity.

The coating compound provides all-around protection against a variety of hazards, including cutting, abrasion, heat, solvents, acids, alcohols and caustics. The glove is available in palm coated knitwrist and 7 coated, liquid-proof styles such as knitwrist and 10, 12, 14 and 31-in. gauntlets.

Edmont Mfg. Co., 1205 Walnut St., Coshocton, Ohio (Item 301)



Transformer Hoist

This manual hoist has a redesigned base clamp with increased strength and support to boost the safety factor for workmen high on utility poles. The two-piece unit is raised by a hand line and assembled at the top

of the pole. The base clamps securely to the pole by sturdy pole chains and a simple, fast-operating clamp. The swivel head, which seats on the tubular base assembly, has been shortened to permit faster and easier assembly on the pole. The cable or manila rope from the truck winch passes up through the base assembly and over the sheaves, utilizing the power from the truck to raise the transformers. The rear sheave has been

dropped 2 in. to prevent slippage or blind hazard. Aluminium sheaves have been designed to accommodate steel cable or manila rope.

The 42-lb. unit is inexpensive, versatile and portable. Two workmen on the line can install three transformers in 30 minutes, with the truck operator working the winch line.

Morrison-Pelsue Co., 2256 South Delaware St., Denver 23, Colo. (Item 302)



Radiation Protection

Shielding material for protection against radiation and made of lead vinyl is called "LEADX."

The product is lighter than conventional lead rubber and has a sanitary, non-absorbing smooth surface. It offers protection in any lead equivalent. The standard thicknesses

have .25mm, 5mm and 1.00mm lead equivalent.

LEADX has been subjected to massive radiation from 100,000/r to 1,000,000/r, with no physical damage. Tests under extremes of freezing and heating show no appreciable changes. It is also available in sheeting for special applications, including curtains for dividing rooms.

Bar-Ray Products, Inc., 209-25th St., Brooklyn, N. Y. (Item 303)



Safety Strap

This safety strap is constructed of

100 per cent, 1¾-in. yellow neoprene nylon with a 2-ply red safety center.

For More Information—Circle Item Number on Reader Service Postcard

The single tongue buckle construction, with all holes seared to stop scratching, has a buckle hold strength test of 2100 lbs., straight snap to snap pull. Accelerated abrasion tests report this new type of construction has a longer life.

Other tests of "N" series straps show added strength, flexibility and greater visibility. A complete range of lengths is available.

Miller Equipment Co., Inc., 13th & Eagle Sts., Franklin, Pa. (Item 304)



Safety Bench Can

The problem of cleaning small metal parts in gasoline is solved with this safety-bench can. To minimize waste and speed, the operation of cleaning small parts or swabbing larger

ones, special features designed in this can have been approved by Factory Mutual for industrial use.

It has a spring-actuated dasher, perforated and flush with the top of the can to reduce evaporation losses and minimize explosive vapors. The dasher, coupled with baffles, protects the contents of the can from fire. The entire can is constructed of heavy-gauge coated sheet steel with a red enamel exterior finish.

Also new is a drip can used to reduce fire hazards where a faucet may drip or where a slow leak is likely. These safety bench cans are available in 1 and 2-qt. and 2-gal. sizes, and the drip can comes in 2-qt. size.

Eagle Mfg. Co., 2896 Charles St., Wellsburg, W. Va. (Item 305)

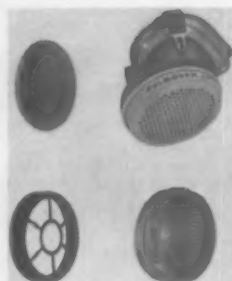


Water Type Extinguisher

An air-pressured, water type extinguisher called the "Hoosier" is offered in a 2½-gal. stainless steel unit. The extinguisher is operated with between 90 and 100 lbs. pressure and has a stainless steel collar heli-arc welded to the dome, large filler opening, plastic pick-up tube

and other features.

Elkhart Brass Mfg. Co., Inc., Elkhart, Ind. (Item 306)



All Purpose Respirator

The new C 200 series respirator is said by the manufacturer to stop various hazards including dusts, mists, organic vapors, paint spray, ammonia and insecticides. The respirator carries the U. S. Bureau of Mines approval and has a single filter retaining cup. The respirator is equipped with interchangeable filters for almost every respiratory hazard. The one basic respirator with the single filter retainer cup will reduce the need for stocks of special-purpose respirators required in many industrial operations.

Pulmosan Safety Equipment Corp., 644 Pacific St., Brooklyn 17, N. Y. (Item 307)

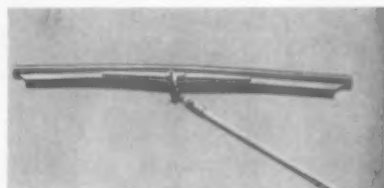
Copper Conductor Tape

One hazard in hospitals, laboratories and other locations where explosive atmospheres may be present is the build up of static electricity caused by walking across floors of asphalt tile and similar materials.

To eliminate this static electricity constantly and quickly, a pure copper conductor tape is laid in strips along the joints between the tiles when they are laid. The conductor tape is laid from one edge of the floor to the other and connected to a ground so all static electricity is drained off before it can build up.

The tape is "thin strip." Since it is .003-in. thick, it does not interfere with the smoothness of the floor. The tape has been field tested in a number of hospitals.

Somers Brass Co. Inc., 94 Baldwin Ave., Waterbury, Conn. (Item 308)



Ubangi Applicator

The ubangi applicator enables one man to apply and

remove Ubangi line hose, hoods, connectors and blankets. Hose and blankets are applied and removed by using applicator blades, while connectors and hoods are handled by inserting the prongs through holes in lugs on the top of both devices.

The applicator is equipped with 24-in. blades for hose up to 4½-ft. long or with blades 36-in. long to handle 5 or 6 ft. hose lengths.

W. H. Salisbury & Co., Morgan & Kinzie Sts., Chicago 22, Ill. (Item 309)

For More Information—Circle Item Number on Reader Service Postcard



Conductometer

A conductometer for testing the electrical resistance of personnel, flooring and equipment in hospital operating rooms is now available. Model H90-500A is a portable instrument that permits hospitals to have an ohmeter for their operating areas without breaking into the wall for installation. (Such action would be necessary for the installation of the flush-mounted, UL-listed model UL-90-500A.) This portable type model is furnished in a metal cabinet.

The new model is identical in design with the Underwriters' Laboratory model. The conductometer's elbow switch permits personnel-testing under aseptic conditions. The indicator scale is in color and is easily read.

The complete conductometer unit includes an electrically-operated testing instrument, personnel test plates, testing electrodes for floor testing and equipment test plates for equipment. The device meets the safety requirements of NFPA Booklet No. 56 *Recommended Safe Practice for Hospital Operating Rooms*.

Conductive Hospital Accessories Corp., 82 West Dedham St., Boston 18, Mass. (Item 310)



Safety Ladders

"Trouble-Saver" safety ladders combine the strength and safety of steel construction with the efficiency of a rolling unit.

The units are made in 20 in. and 30 in. widths in a range of sizes from 1 to 5 steps without handrails and from 2 to 12 steps with handrails. Design features include: all-welded construction; smooth-rolling casters which lock when user steps on ladder; flared base for greater stability; extra braces on taller ladders; expanded metal treads of improved design; and curved front rails on units without guard rails making the ladder easier to grasp for rolling.

The ladders are finished with a synthetic aluminum enamel. This coating forms a solid metallic barrier and dries to a hard, tough abrasion-resistant surface with rust-resistant properties.

Patent Scaffolding Co. Inc., 38-21 Twelfth St., Long Island City 1, N. Y. (Item 311)

Static Reducing Fuel Additive

SCA-100 is an additive that shows promise in reducing static hazards in a variety of hydrocarbon fuels and solvents by increasing their electrical conductivity.

For More Information—Circle Item Number on Reader Service Postcard

National Safety News, April, 1959

The non-metal-containing additive may prove useful in refinery stocks and finished products where there are hazards of explosion or fire induced by static discharge. It is ashless and compatible with other commonly used fuel additives.

Chemically a mixture of complex organic nitrogen-containing compounds, the new additive appears to be effective in fuels which develop positive or negative electrical charges. Possible applications include gasolines, rocket fuels, solvents, distillates, refinery feed stocks.

Exact recommendations as to usage will depend on results of field tests. Laboratory results indicate that concentrations of 3 to 10 pounds of SCA-100 per 1,000 barrels of product give a significant reduction in static charge accumulation and an increase in electrical conductivity.

E. I. Du Pont De Nemours & Co., Wilmington, Dela. (Item 312)

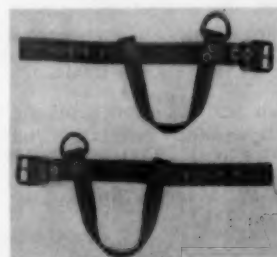


Industrial Gloves

Improved grip and greater comfort are features of latex and neoprene, soft-lined industrial gloves. The glove line combines the protective qualities of long-wearing latex and neoprene compounds with extra hand comfort, maximum flexibility and finger sensitivity. This is accomplished by a soft cotton fiber inner lining that absorbs hand perspiration and by the Firmhold Finish—a diamond-shaped grip pattern that provides better gripping action on wet or slippery objects.

These gloves are designed for most water solutions of acids, alkalies, salts and in ketones. The gloves are ideal for handling paint and varnish removers, naphthas, alcohol, gasoline, cleaners, and other solutions. They are available in sizes 7 to 11 and in 12-in. lengths.

Wilson Rubber Co., Industrial Div., 1200 Garfield Ave., S.W., Canton 6, Ohio (Item 313)



Wrist Bands for Punch Press Guard

New nylon wrist bands for this manufacturer's pull-back safety devices provide more comfort for operators. The flexible nylon webbing is reported stronger than that of standard leather wrist bands. Tests indicate usable life to be of longer duration. The bands are readily cleaned with soap and water or cleaning solvents.

Positive Safety Mfg. Co., 4403 Perkins Ave., Cleveland 3, Ohio (Item 314)



Rider Type Scrubber- Vacuum

Model 72-F rider type, combination scrubber - vacuum, can clean up to 95,000 sq. ft. of open floor area per hour. It is designed for industrial users with areas of 50,000 sq. ft. or more to be cleaned. It removes dirt and grime through the action of four 18-in. brushes rotating at 180 rpm. The brushes agitate a cleaning solution dispensed from a 150-gal. solution tank. Pressure on the floor is variable up to 400 lbs. through the hydraulic control system.

A large, V-shaped squeegee funnels loosened dirt into a 150-gal. pick-up tank. The over-all length of 114 in. and 72-in. width enables the 72-F to turn in its own length and operate effectively in a 10-ft.-wide aisle. Though requiring only one operator, the 72-F can clean unlimited areas in minimum time. Operating speed is 2 to 3 mph. The unit can travel up to 15 mph.

Finnell System Inc., 2204 East St., Elkhart, Ind. (Item 315)



Chemical Goggle

A yellow framed chemical goggle combines color identification, air circulation and increased splash protection. The color conforms to the American Standards Association Color Code for acid operations.

Six splash-proof vents, composed of aluminum heads over fine mesh screen, provide better air circulation and prevent fogging even when the "Softie" is worn over other glasses.

The self-adjusting flexible vinyl noseguard gives the wearer splash protection by sealing off vulnerable areas. The goggle has an optically perfect, wide-angle lens of clear .050 acid-resistant plastic which conforms to all federal specifications for impact and pierce resistance.

The goggle also features an acid resistant, neoprene rubber headband that adjusts instantly without metal slides. It is available with a yellow or clear frame.

Glendale Optical Co., 600 W. Merrick Road, Valley Stream, L.I., N. Y. (Item 316)

Waterproof Safety Shoes

Molded waterproof safety shoes feature a special construction that includes water resistant sylflex leather uppers with one piece soles and heels shaped and molded directly to the uppers by hydraulic pressure and heat. Seams and needle holes are sealed with a

self-vulcanizing adhesive. Extensive testing subjected the shoes to 25,000 flexes with no sign of water penetration.

The soles and heels are brown oil resistant, anti-slip grit composition. The waterproof feature will help workers in breweries, slaughterhouses, outside construction, tanneries, logging, chemical plants and other occupations where moisture and water are present. An 8-in. boot, a 6-in. shoe and a plain toe oxford make up the new line. Each shoe features exclusive anchor flange steel box toe.

Hy-Test Safety Div., International Shoe Co., 1509 Washington Ave., St. Louis 66, Mo. (Item 317)



Crane Safety Device

"SAF-T-BOOM" protects crane booms from contact with overhead power lines and is said to prevent injury to workers. The device is a weather-proofed protective shield of steel tubing. Four heavy-duty insulators prevent the flow of electricity to the machine and workers when the device comes in contact with power lines. SAF-T-BOOM has been field and laboratory-tested with more than 50,000 v without by-pass or leakage. It is designed not to hamper the efficient operation of the crane or the operator's view.

The device offers protection to the machine and power lines. Many high-line accidents result in expensive property damage as well as possible injury and death to those working around the crane.

Saf-T-Boom Sales & Service Corp., 318 N. Saint Paul St., Dallas, Texas (Item 318)



Fire Fighting Sphere

This multi-purpose fire extinguisher, called the "Monitor," features a spherical design and one-hand operation. The shape of the 2½-lb. dry chemical extinguisher permits it to be placed in almost any location.

The cartridge can be instantly replaced after use. Each monitor recharge is filled, pressurized and sealed during manufacture. The maker claims it is the only dry chemical recharge unit approved by UL.

The monitor requires no pressure gauge, because the owner can determine the proper charge of the gas by weighing. The cartridge remains fully charged in-

For More Information—Circle Item Number on Reader Service Postcard

definitely, provided it has not been punctured. The hanging bracket also serves as a locking device to avoid accidental discharge.

A squeeze of the trigger-grip sends a steady stream of dry chemical on the blaze. Rated effectiveness is equal to 8-pump type, 1-qt. carbon tetrachloride extinguishers. The monitor has a high center of gravity, permitting effective one-hand operation and accurate control of the extinguisher's flame-killing stream.

Ansul Chemical Co., Marinette, Wis. (Item 319)



Safety Switch

Designed for industry, this Safety Switch offers protection at the point of operation and without interference. It also provides universal mechanical activation. The guard responds to light pressure from any position or angle. A limit switch, the heart of the device, is operable from various directions, with no pre-setting.

The non-blockable switch insures that the machinist cannot operate the machine unless the switch is set. The device comes packed with instructions, diagrams and sufficient unformed guard rod and clamps so a safety man or mechanic can fit and install protection at a hazardous area in a few hours. The large moment arms from larger guards are mechanically balanced in the compact control box by a compensator which eliminates need for awkward, inefficient counterbalancing.

Johnson Universal Safety Switch, 9653 S. Hamlin St., Chicago 42, Ill. (Item 320)



Dry Chemical Fire Extinguisher

A 2½-lb., pressurized, dry chemical, multi-purpose industrial fire extinguisher is available in "Safety Twin" models. Styled alike, one *twin* is finished in chrome plate. The other *twin* features a vermillion red finish.

The extinguisher is approved by Factory Mutual and Underwriters' Laboratories and is designed for use with maximum ease and effectiveness by male and female employees. One feature is special "grip fit" handle.

The extinguisher is charged with Formula H, an improved, newly patented, dry chemical extinguishing agent. Resistant to moisture, heat and compaction, Formula H will flow freely and perform with equal

efficiency under all conditions. One squeeze of the handle releases the powder in a wire-angle, flat, dense pattern.

The powder contains no dangerous chemicals, produces no toxic fumes and is a non-conductor of electricity. The pressure gauge, positioned in front of the grip fit handle, is a safety feature. The gauge permits quick, frequent visual inspection of the extinguisher's operational readiness. Both *twins* carry a 4-B,C UL rating.

Fyr-Fyter Co., 221 Crane St., Dayton 1, Ohio (Item 321)



Coupling Link

Chain users now can assemble alloy steel sling chains with patented hooks in their own plant. The system eliminates possible delays in delivery of factory-made slings and by-passes shipping costs incurred when slings had to be returned to the manufacturer for repair work.

The chain is repaired with Hammerlok links so the entire worn or damaged section of the assembly can be replaced. The link is not intended as a repair link. The new system is simplified, with an assortment of chain sizes, attachments and the required Hammerlok links. Neither special tools nor skilled labor is necessary.

The links are drop-forged and heat-treated and are said to be stronger than the chain they are used with.

S. G. Taylor Chain Co. Inc., P.O. Box 509, Hammond, Ind. (Item 322)



Aluminum Ladder

An aluminum ladder in the straight and extension type has a new type rung to rail construction said to provide more safety than convention-

ally constructed ladders.

The "Oval-Lok" rung joint uses a new method of connecting rungs to side rails. An oval hole, claimed to make rung twisting practically impossible, is punched in the side rail. The rung is crimped before insertion and double crimped afterwards. The double crimp not only prevents the rung from pulling out of the side rail but reinforces the rung against collapsing.

The safe life of a metal ladder depends on the ability of the rung joint to stand the daily abuse it receives during climbing, descending, and handling processes.

Louisville Ladder Co., 1101 West Oak St., Louisville, Kentucky (Item 323)

For More Information—Circle Item Number on Reader Service Postcard



Gas Mask

This new gas mask has four special features, available as desired by the customer. It is useful in fumigation work.

The back mounting of the canister assures its inlet is in the least contaminated air surrounding the operator. The canister pouch is provided with adjustments so the manufacturer's Chest Style 1,000-cc or Chief Style 2,000-cc unit may be used.

In case the operator uses different canisters for various gases, or desires to quickly connect fresh canisters, the quick change feature using threaded canister necks is useful. Quick change connection is also available at the facepiece so chin style canisters may be used.

The mask is U. S. Bureau of Mines-approved with the manufacturer's Chest Style 1,000-cc organic vapor canisters.

Acme Protection Equipment Co., 1201 Kalamazoo St., South Haven, Ind. (Item 324)



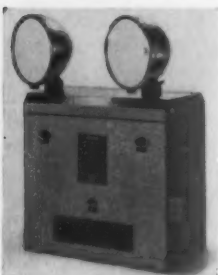
Pneumatic Tourniquet

This tourniquet reduces the hazards of hemorrhage, infection and shock and helps prevent death after accidents whenever the flow of blood must be stopped.

Air distributes pressure gently and evenly to the injured member, so damage to the nerves and walls of the blood vessels is prevented. The tourniquet is simple and easy to use so in many cases the individual can manipulate the tourniquet, if he is conscious.

It consists of a flat, plastic tubular belt, adjustable to any size and with a pressure pad on one inside end. By squeezing the bulb, belt and pad can be inflated with air to stop the flow of blood. By turning the bulb to the left, the belt and pressure pad are deflated, relieving pressure and restoring circulation.

Shepherd Knapp Co., English Village, Wynnwood, Pa. (Item 325)



Emergency Lighting

This emergency lighting unit provides reliable, instantaneous light in case of power failure. It is powered by a nickel cadmium battery and is equipped with heavy-duty dual

contact relays. The only maintenance required is watering twice a year.

The emergency lighting assemblies have a built-in trickle charger to keep the battery at full charge. The double light unit can illuminate a 10,000-sq. ft. area for two hours and can withstand extreme storage and operating temperatures. The unit's battery gives off no corrosive fumes nor will it deteriorate while standing idle.

Illustrated Model 7 connects to a 120v, 60-c a-c outlet. The lamps are non-glare diffused. Over-all dimensions of the 68-lb. model are 9 by 18 by 22 in.

NICAD Division, Gould-National Batteries, Inc., Easthampton, Mass. (Item 326)

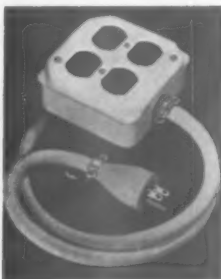


Floor Cleaner

This cleaner is said to be 3 to 6 times more powerful than ordinary germicides. Elimistaph #2 cleans, disinfects, sanitizes and deodorizes in a single operation. It destroys Golden Staph and most other known pathogens, spores and fungi by penetrating the wall of the germ cell and disintegrating the entire organism from within.

Residual in its action, Elimistaph #2 has a phenol coefficient of 33 (certified by U. S. Testing Company). The only product of its kind to earn the York Quality Research Seal, the cleaner is colorless, odorless and low in toxicity. It is recommended for use on floors, walls, furniture, equipment, lavatories, shower stalls, utility closets, garbage cans. Designed for hospitals and industrial plants, the product is economical to apply. One ounce makes a gallon of mopping solution.

Walter G. Legge Co. Inc., 101 Park Ave., New York 17, N. Y. (Item 327)



Electrical Outlet Box

This outlet box is said to eliminate the need for many long lengths of cord. As many as four power tools, lights, etc., may be plugged in at the point of use. No. 14 cable in 25- or 50-ft. lengths is standard. Six different outlet receptacles are available.

The box is made of metal covered with a coating of yellow Neoprene rubber of high dielectric strength and oil and chemical resistance. The yellow color is highly visible, attractive and easy to clean. With this box anyone wanting to extend electrical outlets in changing locations can do so.

Ericson Mfg. Co., 1660 Hayden Ave., Cleveland 12, Ohio (Item 328)

For More Information—Circle Item Number on Reader Service Postcard

National Safety News, April, 1959



Safety Spectacle

BPT two-tone acetate frame spectacles feature styling with a universal bridge. The spectacles are made of sheet acetate stock and are available in popular eye sizes and temple lengths. The lenses are reported of good optical quality, tempered glass or plastic.

Eastern Safety Equipment Co., 25-09 36th Ave., Long Island 6, N. Y. (Item 329)



Automatic Emergency Lighting

Model 59-W is an automatic emergency lighting unit powered by a 6 v., 30 a.h. capacity battery with visible hydrometer balls. The unit

contains a voltmeter, test switch, pilot light, and safety fuse mounted on the side of the case. Two adjustable, sealed-beam, flood type heads, are mounted on top of the case and will supply about four hours of continuous emergency lighting.

The charging system is automatic and requires no manually operated timers or switches for correct bat-

tery maintenance. Model 59-NC is the same unit furnished with a nickel cadmium battery.

Electric Cord Co., 21 Spruce St., N. Y. 38, N. Y. (Item 330)



Silent Floor Machine

A 16-in. brush floor machine includes a new gear reducer, with steel gears, a sensitive micro-switch handle; and 50 ft. of 3-wire cable.

Each Model 16E machine is equipped with polish and scrub brushes, color coded for each selection.

Short or long steel-wire brushes, steelwool pads or donuts, and sanding disks are available at extra cost.

The low, silent unit has a 1/2-hp motor resting directly over the brush, creating an even balance for easy operation. Besides providing less operator fatigue, the well-balanced machine assures uniform coverage and effective use of power. Runaways are prevented by the sensitive micro-switch, which instantly stops the machine if the handle is released.

The gear reducer adds more silence to the machine. The reducer is a separate unit, easily removed from the motor for simple repair.

Huntington Laboratories, Inc., Huntington, Ind., (Item 331)

For More Information—Circle Item Number on Reader Service Postcard

NEWS ITEMS

Ansul Chemical Co.

This manufacturer of fire equipment has announced the schedule for its 1959 fire school season. Thirteen sessions running from May 18 through Sept. 30, have been planned at the test station in Marinette, Wis.

Employees of the company's customers are eligible to attend the school without charge, except for living expenses. Each session lasts 2 1/2 days.

Equipment users who wish to send representatives to one of these sessions should contact the Ansul regional office in their area. Regional offices are located in Paoli, Pa.; Milwaukee, Wis.; Cleveland, Ohio; Kansas City, Mo.; and Burlingame, Calif.

* * *

Macwhyte Co.

This Kenosha, Wis., wire rope manufacturer has announced the appointment of William J. Anderson as a regional sales manager. Mr. Anderson was formerly direct factory representative for the company and was

responsible for the sales district of Indiana, Illinois and Kentucky. He will now have headquarters in Kenosha and will supervise sales in the Midwest and Eastern sales territories.

The company also announced its use of a new warehouse building at 144 Thalia St., New Orleans, 13, La.

* * *

Campbell Chain Co.



A new modern chain plant has opened at Alvarado, Cal. The plant will produce welded and weldless chain and assemblies for quick delivery to industrial, commercial and automotive chain users in western states. The factory will cover 130,00 sq. ft. of office and manufacturing facilities.

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2 SAF-T-CHUCK KEY-BAK MODEL
 Attach SAF-T-CHUCK KEY-BAK to all drill presses. Chuck key is always handy; SAF-T-CHUCK KEY springs out when released. It can NEVER, NEVER, NEVER be thrown from the whirling Chuck Model 7SK — \$4.45 complete with #3 Key; Key available in ten sizes.



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Circle Item No. 82—Reader Service Card

Off-the-Job

—From page 115

When cutting heavy, tall grass or heavy weeds, the operator should proceed slowly to avoid choking the mower or stalling the motor.

Hills and banks should be cut sidewise instead of up and down, provided the grade is not too steep to prevent balance and control of the mower. Under no condition should the mower be pulled back towards the operator on a down-grade.

Maintenance. Motor should be kept free from accumulations of grass, leaves, or excessive grease. An accumulation of these combustible materials could result in a fire or damage the motor and working parts.

The mower should not be adjusted, nor should objects or attachments be removed from the mower until the motor has been turned off and there is no danger of it being started.

Before working on the underside of a gasoline-powered mower, the spark plug wire should be disconnected and the engine allowed to cool. On electric mowers, the power should be shut off at the source.

Liquid fuel should be stored in tightly-sealed containers of a type approved by Underwriters' Laboratories, Inc. The container should be kept outdoors in a shed or garage—not in the basement or utility room of a house.

An operator should not refuel a mower while it is hot, running, or in a closed area, nor while he is smoking.

The mower should be allowed to cool and should be cleaned before storage. A systematic schedule for inspecting and lubricating mowers should be observed. It is advisable to have only experienced mechanics or power mower servicemen make repairs on these machines.

Personal Protection. Operators of a power mower should wear heavy, close-fitting trousers and brogue-type shoes, or preferably steel-toe safety shoes. It is strongly recommended that operators also wear safety glasses. Accident data show frequent occurrence of eye injuries from flying objects.

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TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.



Maintenance and Construction Products:

Brochure BP-6030 describes and illustrates products designed for floor treatment, waterproofing and dampproofing, and roof coating, as well as paints and protective coatings. The two-color brochure includes product specifications, application data, and information on product features. L. Sonneborn Sons, Inc., Building Products Div., Dept. BS, 404 Fourth Ave., New York 16, N. Y.

For more details circle No. 400
on enclosed return postal card.

Hoists and Cranes:

Folder DH-28 illustrates and describes the Wright Line of Motor-Operated Hoists, Hand-Operated Hoists, Jib Cranes, Hand-Traveling Cranes and Motor-Driven Cranes. The bulletin contains data on general features, construction details, weights, dimensions, suspensions, specifications, clearance, accessibility, and other information for plant operators. Wright Hoist Div., American Chain and Cable Co., Inc., 929 Connecticut Ave., Bridgeport 2, Conn.

For more details circle No. 401
on enclosed return postal card.

Safety Floor Coating:

The features and advantages of Whistl-Phane, a new non-wax, extra safe floor coating, are presented in brochure WC-1721. Described as exceptionally slip-resistant, Whistl-Phane is recommended for the maintenance of composition floor surfaces (asphalt, vinyl, rubber, linoleum, vinyl asbestos, etc.). The new folder tells how Whistl-Phane, which is formulated from plastics used in the manufacture of thermoplastic sheets, tubes, bags, and similar flexible products, dries quickly to a self-polishing, tough finish that will outwear conventional water emulsion wax films. The folder further describes how Whistl-Phane, unlike many plastic coatings, can be easily and quickly removed. The Whistl-Phane Corp., Dept. WP, 404 Fourth Ave., New York 16, N. Y.

For more details circle No. 402
on enclosed return postal card.

Fire Extinguishers:

The Fyr-Fyter Company, 221 Crane St., Dayton 1, Ohio, has just issued a new 28-page brochure (Form No. S-62) covering its nine major brands of interior fire extinguishing systems, portable extinguishers, cabinets, and other "inside" fire con-

trol products. Every type of modern interior fire control system—automatic sprinkler, carbon dioxide, dry chemical, foam and smoke detection—is described and illustrated. Details on hose and extinguisher "wall mounted" and "recessed" cabinets; a review of all latest style extinguisher models; data on hose nozzles, valves, and connections; and facts on hundreds of other important fire control accessories are also provided.

For more details circle No. 403
on enclosed return postal card.

Insulating Tapes and Fabrics:

Five new bulletins describing CDF woven-glass-base insulating tapes and fabrics are available from Continental Diamond Fibre Corp., Newark 107, Del. The bulletins describe properties and applications of glass tapes, fabric sheets, wrappers, and die cut pieces, both silicone-varnished and rubber-coated. Titles of the bulletins are: "CDF Silicone Varnished Glass Fabric Sheets, Tapes, Wrappers and Die Cut Pieces," "CDF Pressure-Sensitive Silicone Varnished Glass Fabric and Tapes," "CDF Silicone Rubber Coated Glass Fabric Tapes, Wrappers and Die Cut Pieces," "CDF Semi-Vulcanized Silicone Rubber Glass Fabric Tapes, Wrappers and Die Cut Pieces," and "CDF Grade CD-GSR Uncured Silicone Rubber Coated Glass Fabric for Producing Laminated Structures." Each bulletin includes, in tabular form, complete information on both physical and electrical properties.

For more details circle No. 404
on enclosed return postal card.

Wire Rope Inspection Plan:

The effective service life of wire rope can be substantially increased by a proper program of inspection according to Red-Strand Service Bulletin No. 104, issued by Leschen Wire Rope Div., H. K. Porter Co., Inc., 2727 Hamilton Ave., St. Louis 12, Mo. Proper operation and maintenance of wire rope is impossible without regularly scheduled inspections so thorough and accurate that any conclusions drawn from them can be fully trusted. This illustrated bulletin explains when inspections should start, how often they should be made, how they should be reported, and a point-by-point check list of the things that should be done each time an inspection is made. The importance of equipment inspections is emphasized together with useful information concerning evaluation of the findings.

For more details circle No. 405
on enclosed return postal card.

Soluble Oil Mixer:

Two-page bulletin explains how the Force-Flo Soluble Oil Mixer inserts into a drum to accurately and uniformly mix soluble oil and water in the exact proportion required. Literature points out the savings in time, material, labor, and space effected by the mixer that dispenses emulsion directly from the drum in one-tenth of the time normally required. Force-Flo, Inc., P. O. Box 2442, East Cleveland 12, Ohio.

For more details circle No. 406
on enclosed return postal card.

Power Protector:

Bulletin GEA-6527, eight pages, provides detailed information on the application, features, and operation of General Electric's Type LB-1 Power Protector, designed for heavy duty commercial building applications, 480 volts AC and below. Publication contains photos, tables, charts, curves, guide form specifications, dimensions, and ratings. General Electric Co., Schenectady 5, N. Y.

For more details circle No. 407
on enclosed return postal card.

Fire-Retardant Coatings:

The Royston Laboratories, Inc., Blawnox, Pittsburgh 36, Pa., has made available a four-page brochure on Roskote Fire-Retardant Coatings for Thermal Insulation Materials. Application and coverage data are provided in the bulletin.

For more details circle No. 408
on enclosed return postal card.

Oxygen Analyzer:

The Beckman D2 Oxygen Analyzer (standard instrument for safe oxygen therapy in hospitals and non-medical laboratories) is described in a new specification sheet, Bulletin 749. The specification sheet tells how the portable analyzer safeguards the lives of incubator infants and other hospital patients receiving oxygen therapy. The bulletin also explains the operating procedures of the D2 and lists complete specifications and ordering information for the instrument. Beckman Scientific and Process Instruments Div., 2500 Fullerton Road, Fullerton, Calif.

For more details circle No. 409
on enclosed return postal card.

Safety Signs:

Form 3547 illustrates and describes company's line of Industrial Good Housekeeping Signs and miscellaneous signs. All

Guard Against
injury loss of life confusion
SUDDEN BLACKOUTS
destruction panic
be prepared with




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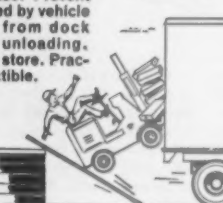


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Canada: Bernard Marks & Co., Ltd., 70 Claremont St., Toronto 3, Ont.

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these signs are shown in color and includes prices and specifications. Stonehouse Signs, Inc., Stonehouse Bldg., 9th and Larimer St., Denver 4, Colo.

For more details circle No. 410 on enclosed return postal card.

Noise Control:

H. H. Scott, Inc., Sound Instrument Div., 111 Powdermill Road, Maynard, Mass., have made available their new Catalog Sheet SIP, which gives full details on the H. H. Scott Sound Level Meter, Sound Analyzer, and other instruments.

For more details circle No. 411 on enclosed return postal card.

Material Handling:

"The Basic Concepts of Industrial Material Handling" is the title of the new 16-page Booklet No. 1, which is part of "The Library of Know-How," published by the Material Handling Institute, Inc., Educational Division, One Gateway Center, Pittsburgh 22, Pa. The new literature is a comprehensive introduction into the basic principles of industrial material handling. It tells what material handling is; what are its costs; what are its objectives; and how proper material handling equipment is selected.

For more details circle No. 412 on enclosed return postal card.

Utility Markers:

Where permanent identification is needed, a new line of self-adhering, reflective Westlite Utility Markers is available from stock in numbers and letters, and almost all KVA ratings. Applied instantly, Westlite Utility Markers identify distribution transformers, pole-top sectionalizing switches, visibility strips, control panels, KVA banks, vaults, circuits, electrical, and fire equipment, etc. Reflective Westlite Utility Markers conform to N. E. M. A. Standards. Stock letters and numbers make up warning-instruction-safety-directional wordings in seconds. Markers stand out bold and bright by day or night. Literature gives full details. Westlite Products Div., Western Lithograph Co., 698 E. 2nd St., Los Angeles 54, Calif.

For more details circle No. 413 on enclosed return postal card.

Dust Collector Information:

New information sheets on two versatile Torit cabinet cloth filter dust collectors have just been published by Torit Mfg. Co., Dept. KP, Walnut and Exchange Sts., St. Paul, Minn. The literature describes Torit Models 64 and 66, compact, self-contained units in the 500 cfm range with a collection efficiency of better than 99.9 per cent, even with particle sizes smaller than one micron. Photographs illustrate internal design and typical applications of the collectors. Information sheets also include multiple rating tables, complete specifications and a dimensional drawing.

For more details circle No. 414 on enclosed return postal card.

Safety Grating:

The Globe Co., Products Div., 4000 S. Princeton, Chicago, Ill., has issued two new catalogs describing their two products, Safety Grip Strut Grating and Safe-Gard Expanded Metal Partition Panels. The Grating Catalog describes two products, Safety Grip Strut Grating, of one-piece construction in steel, aluminum, and stainless steel, and also the Gold Nugget welded grating, which is projection welded for greater rigidity and strength. This catalog shows installations, gives

complete engineering data for erection, plus accurate load charts for both gratings, fully illustrated. The Safe-Gard Catalog describes this new expanded metal partition panels with exclusive Quick-Erect patented fittings for easy method of guarding conveyors and machines and for all in-plant partitions. Gives complete range of sizes and all engineering data.

For more details circle No. 415 on enclosed return postal card.

Industrial Enclosed Switches:

Catalog 83C gives complete details of nine housing groups of metal-enclosed switches for industrial uses. Explosion-proof, maintained-contact, pre-wired, hand-operated and sealed switches are a few of the 90 different listings shown. It lists switches with a variety of actuator types to fulfill almost any requirement for general-purpose industrial enclosed switches. For users who require great adjustability or extra-severe environmental resistance, the heavy-duty limit switches detailed in new micro switch Catalog 84 will be well suited. Micro Switch, a Div. of Minneapolis-Honeywell Regulator Co., Freeport, Ill.

For more details circle No. 416 on enclosed return postal card.

Dust Collector Book:

A 24-page illustrated application handbook entitled, "Industry Relies on Dust-tube Collectors for Efficient Dust and Fume Control" is currently being offered Wheelabrator Corp., 1304 S. Byrkit St., Mishawaka, Ind. The book describes a wide range of industrial dust- and fume-producing processes that can be successfully controlled with the properly designed cloth or glass bag-type dust collectors. Difficult "hot and corrosive" applications such as the ventilation of electric steel furnaces, granular fertilizer driers, the manufacture of carbon black, mining and smelting operations, and chemical fume collection are featured. The synthetic and glass filtering bags designed to resist the high temperatures and corrosive action of many of these applications are also briefly described.

For more details circle No. 417 on enclosed return postal card.

Battery Chargers:

A chart for determining the proper size and model of silicon-rectifier charger to be used with standby batteries has been published by Exide as part of a bulletin on its complete new line of this type of charging unit. Tabulating information on 27 basic rectifier models, the chart enables the user to select chargers according to number of battery cells to be charged, output amperage and input voltage and phase. It also lists dimensions and weight of each model and specifies whether it can be mounted on a wall, rack or floor.

These chargers, which provide the most accurate voltage control available in charging of standby batteries, are for use in electric utility service, in emergency power, emergency lighting, and in other float-charge battery applications. The chart covers a full range of single- and three-phase models for these applications, including rectifier units for charging batteries with 11 to 62 cells and having an output range of 1 to 400 amperes. Exide Industrial Div., Electric Storage Battery Co., Rising Sun and Adams Aves., Philadelphia 20, Pa.

For more details circle No. 418 on enclosed return postal card.

Lighting Fixtures:

The complete vapoport lighting fixture line just announced by Stonco Electric Products Co., 333 Monroe Ave., Kenilworth, N. J., is described in a new illustrated 12-page catalog. The catalog includes specifications, dimensional data with outline drawings and application information for all components and assemblies of the entire line of completely interchangeable pendant, ceiling, and wall fixtures. Large cut away photos illustrate the precision-molded die castings, "air-conditioned" reflectors and other outstanding design features.

For more details circle No. 419 on enclosed return postal card.

Coupling Link:

Bulletin CL-1 released by The McKay Co., 1005 Liberty Ave., Pittsburgh 22, Pa., fully describes and points out the advantages of a new McKay Coupl-loy link, an improved alloy link, especially designed to make on-the-spot chain slings and assemblies. Reference charts in the bulletin quickly indicate the correct size Coupl-loy link to use with various assemblies of McK-Alloy Slings and Double Sling Chains. Simplified drawings illustrate the ease and simplicity with which the Coupl-loy links are assembled and disassembled. Working load limits to indicate safe loads which can be lifted with the various combinations of McK-Alloy Chain, Component Parts, and Coupl-loy Links are also contained in the bulletin. And for handy reference, there's a load chart which determines the size of chain to use for various angles of lift.

For more details circle No. 420 on enclosed return postal card.

Fireman's Helmet:

A fireman's helmet that provides a tamperproof margin of safety through use of a "fixed crown" suspension is described in a new bulletin No. 0806-3 available from Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh, Pa. The new suspension feature is a double cradle which provides a permanent crown clearance of at least 1 1/4 inches between the wearer's head and the inside top of the helmet shell. Designed to meet all federal government specifications, the suspension eliminates uncomfortable pressure points by recessing metal attaching clips into a polyethylene sweatband support.

For more details circle No. 421 on enclosed return postal card.

Measuring Air Pollution:

Bulletin No. IH-4 describes and illustrates a High Volume Air Sampler that accurately samples the air for air pollutants, including radioactive particulate matter, dusts, smoke, and smog. The manufacturer claims it detects and measures community and industrial health hazards. Designed for indoor or outdoor testing; accurately samples particulate matter as small as one one-hundredth of a micron. The Staplex Co., Air Sampler Div., 777 5th Ave., Dept. N, Brooklyn 32, N. Y.

For more details circle No. 422 on enclosed return postal card.

Square Cup Vacuum Lifter:

Vac-U-Mation Div., F. J. Littell Machine Co., announces the addition of Square Cup Vacuum Lifters for lifting and moving steel and non-ferrous plates. The unit shown has two 20-inch square vacuum cups, each with 400 square inches of lifting surface. At 10 pounds per square

inch, each cup has 4,000 pounds of lifting power; with a 4 to 1 safety factor the lifting capacity is still 1,000 pounds. These square cups are adapted to one-cup, two-cup, four-cup and eight-cup Vac-U-Mation units. This heavy duty unit is capable of handling even the most rugged jobs. Since the vacuum pump maintains a constant reserve of vacuum in the tank, even an electrical failure will not permit the load to drop for a reasonable length of time, depending upon the condition of the material. Other Vac-U-Mation models are available for handling light and heavy loads up to five tons. This model is described in Bulletin Air 45, available from Vac-U-Mation Div., F. J. Littell Machine Co., Dept. 5-K, 4127 N. Ravenswood Ave., Chicago 13, Ill.

For more details circle No. 423 on enclosed return postal card.

Safety Paint:

Literature describes company's new Hi-Viz Fluorescent Safety Paints for industrial plants, wherever high visibility is important to safety. The paint can be used on all types of machinery and equipment where sparks, stamping, or cutting areas are hazardous, lift trucks to prevent pedestrian accidents, "low clearance" warnings, high voltage wires and connections, switch boxes, loading platforms, safety helmets, fire extinguishers, exits, plant fire engines and equipment, and safety valves. The Fluorescent color brochure is illustrated in actual Hi-Viz Fluorescent Colors available. Lawter Chemicals, Inc., 3550 W. Touhy Ave., Chicago 45, Ill.

For more details circle No. 424 on enclosed return postal card.

Pipe Markers and Electrical Markers:

Bulletin No. 803 illustrates and describes company's line of pipe markers and electrical markers for quick, easy, permanent identification on pipes, cables, conductors, conduit, controls, panel boards, switchboards, tanks, etc. Complete specifications and prices included. Seton Name Plate Co., 431 W. Rock Ave., New Haven 15, Conn.

For more details circle No. 425 on enclosed return postal card.

Guardsman Air Oxygen Mask:

This apparatus will permit the wearer to breathe in perfect safety for over 30 minutes in any toxic atmosphere or even in an atmosphere completely devoid of oxygen. It consists of single high-pressure cylinder, carried on the back, and a very efficient demand regulator unit which provides breathing air or oxygen to a mask covering the entire face. The demand regulator is a new Globe design which readily opens with the slightest inhalation of the user. As an extra safety feature, a simple bypass valve can be used to meter the air or oxygen flow directly from the cylinder into the mask. Bulletin M-102 gives full details. Globe Industries, Inc., Medical and Hospital Dept., 125 Sunrise Place, Dayton 7, Ohio.

For more details circle No. 426 on enclosed return postal card.

Steel Panel Scaffold Shoring:

A new instructional handbook on the use of steel panel scaffolding for shoring has just been published by Universal Mfg. Corp., Zelienople, Pa. The handbook has sections on applications such as slabs with beams or dropheads, and engineering data as well as case histories including actual shoring layouts.

For more details circle No. 427 on enclosed return postal card.

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PREVENT COSTLY ACCIDENTS

A complete line of indoor or outdoor signs for every need: Fully Approved. Available in two gauges of steel. Write for illustrated catalog and prices.

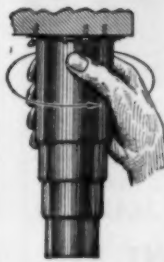


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INCORPORATED

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Guide Pin Covers



PROTECT OPERATOR AND GUIDE PINS

Effectively guard against injury to operator, die and press on operations where bushings leave the guide pins. Protect pins and bushings from chips and dirt when entire pin and bushing are covered. Inexpensive, easy to attach.

Felt Oiler Ring in top units provides POSITIVE lubrication.



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Designed for:

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No one can miss this signal! Covers 360° like an airfield beacon... with a powerful red flash every second! Heavily constructed. Beautifully finished in vitreous enamel to last indefinitely... corrosion proof! TROUBLE FREE synchronous motor 115/130 V., A.C. Standard 75 W. Bulb easily replaceable. Maintenance and upkeep negligible.

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A comprehensive Classified Safety Product Index and a Directory of Safety Equipment Sources appear in the March, 1959 issue.

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Environmental Hazard Evaluations

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**Arsenic
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Mercury
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Other analyses available. Inquire concerning your specific problem.

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Circle Item No. 90—Reader Service Card

National Safety News, April, 1959

Another Outstanding Safety Equipment Development from CESCO

NEW G-3 Hed-Rite Headgear

*Designed with
your head in mind!*

- BROAD BEARING, PIVOTING CROSS STRAP, with concealed height adjustment
- NON-SLIP, NON-STRIPPING RATCHET adjustment for head size
- NYLANITE CONSTRUCTION, sturdy, non-shrinking, non-warping
- 20% to 25% LIGHTER than previous headgears
- CAMBERED HEADBAND with offset rear strap
- EBONY FINISH resists degeneration by Ultra-Violet rays
- NO RIVETS, NO EXPOSED METAL—cannot snag hair
- INTERCHANGEABLE WITH HARD HATS. Snaps on or off in seconds

—a Premium-Quality Headgear at No Increase in Price!



771-F
This compact, light face shield is available with translucent fiber glass deflector crown



748-F
NEW fiber glass crown is now available on the popular 748 face shield



401-7F
Fiber glass helmet with stationary lens holder

THE remarkable Hed-Rite Headgear adjusts three ways: for head size; for overall strap length; for overhead strap position.

Easy-turning rear knob provides head-size adjustment by ratchet action. Ratchet is non-stripping in normal use. Excessive tension results only in slippage without damage to the ratchet or teeth.

Wide cross strap pivots freely back and forth. Four holes in each end of this strap give eight positions of adjustment so as to conform to any crown height and any head contour.

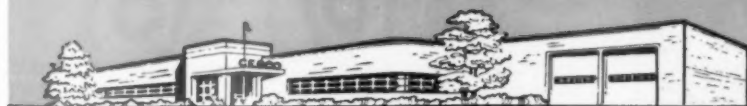
Unique design of the headband gives the proper combination of curves and opposing cambers to produce the broad contacts necessary for complete comfort.

The Hed-Rite headgear may be worn with any face shield, helmet, hood or goggle equipped with CESCO X-12 brackets. Only three typical applications are shown. Headgear is instantly detachable from helmet or shield without the use of tools. There is no electrical conductor between the interior of the headgear and the exterior of the shield or helmet.

FOR MORE INFORMATION about the new G-3 Hed-Rite Headgear, contact your nearby CESCO distributor or write our Chicago headquarters for a copy of the Hed-Rite descriptive folder



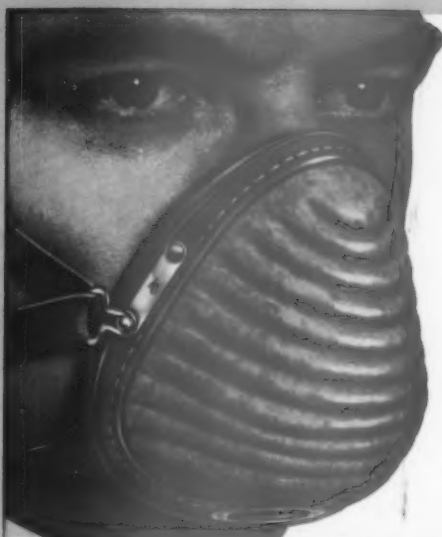
CESCO FOR SAFETY



CHICAGO EYE SHIELD COMPANY
2705 West Roscoe Street, Chicago 18, Illinois

Circle Item No. 18C—Reader Service Card

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LIGHTWEIGHT ON THE FACE...
IDEAL FOR HOT WEATHER!



THIS BUREAU OF MINES APPROVED RESPIRATOR is an old favorite with our customers for inexpensive, hot weather and hot job protection against pneumoconiosis-producing and nuisance dusts.

These dusts include aluminum, borax, carbon, cement, charcoal, coke, flour, glass, grain, graphite, gypsum, limestone, pollen and wood. While used throughout industry, the R9100 is particularly popular in foundries.

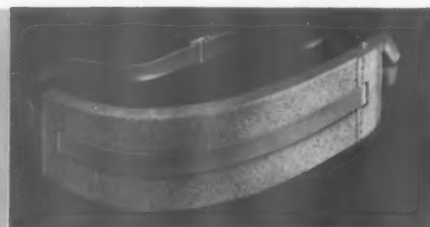
The R9100 weighs only 2 ounces. IT IS THE LOWEST COST, B OF M APPROVED RESPIRATOR ON THE MARKET. (Costs about 1/2 the price of other approved dust respirators.) It can be cleaned for re-use time after time by a shaking, a slap of the hand or by a light blast from an air hose. Easy to breathe in — low resistance exhalation valve will not stick. May be worn with goggles.

DOUBLE SCREENS
on this AO Dust Goggle
are an "Iron Curtain"
against Dusts!

This AO 316 Dust Goggle protects the eyes of your workers against dusts by means of a 150 mesh inner screen set behind a 16 mesh screen. The goggle is a companion model to the AO 315 FOUNDRY GOGGLE. It is regularly supplied with soft plastic mask (leather available). Edges of sponge rubber, corduroy-bound. Super Armorplate clear or Calobar lenses in medium, dark or extra dark shades. Goggle provides maintained perfect fit over most types of spectacle glasses.



AO DUST GOGGLE



Hot Weather Coming!
Time to order your
AO Sweatbands

Keep workers cooler, safer, more efficient. Sweat can't sting eyes, blur vision or carry foreign matter into eyes. 1 3/4" wide cellulose — absorbs 16 to 20 times its 1/2 oz. weight. Can be washed or sterilized and used again and again. Reinforced at ends to prevent tearing — all adjustable strap. Wet before using.



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